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	Nota di contenuto	Introduction -- Continuum mechanics background -- VEM Ansatz functions and projection for solids -- VEM Ansatz functions and projection for the Poisson equation -- Virtual elements for elasticity problems -- Virtual elements for problems in dynamics -- Virtual element formulation for finite plasticity -- Virtual elements for thermo-mechanical problems -- Virtual elements for fracture processes -- Virtual element formulation for contact -- Virtual elements for homogenization -- Virtual elements for beams and plates.
	Sommario/riassunto	This book provides a comprehensive treatment of the virtual element method (VEM) for engineering applications, focusing on its application in solid mechanics. Starting with a continuum mechanics background, the book establishes the necessary foundation for understanding the subsequent chapters. It then delves into the VEM's Ansatz functions and projection techniques, both for solids and the Poisson equation, which are fundamental to the method. The book explores the virtual element formulation for elasticity problems, offering insights into its advantages and capabilities. Moving beyond elasticity, the VEM is

extended to problems in dynamics, enabling the analysis of dynamic systems with accuracy and efficiency. The book also covers the virtual element formulation for finite plasticity, providing a framework for simulating the behavior of materials undergoing plastic deformation. Furthermore, the VEM is applied to thermo-mechanical problems, where it allows for the investigation of coupled thermal and mechanical effects. The book dedicates a significant portion to the virtual elements for fracture processes, presenting techniques to model and analyze fractures in engineering structures. It also addresses contact problems, showcasing the VEM's effectiveness in dealing with contact phenomena. The virtual element method's versatility is further demonstrated through its application in homogenization, offering a means to understand the effective behavior of composite materials and heterogeneous structures. Finally, the book concludes with the virtual elements for beams and plates, exploring their application in these specific structural elements. Throughout the book, the authors emphasize the advantages of the virtual element method over traditional finite element discretization schemes, highlighting its accuracy, flexibility, and computational efficiency in various engineering contexts.