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Nota di contenuto	Chapter 1. Introduction -- Chapter 2. Linear boundary value problems -- Chapter 3. Linear initial boundary value problems -- Chapter 4. Non-linear boundary value problems -- Chapter 5. A primer on non-linear dynamics and multiphysics.
Sommario/riassunto	The book presents the fundamentals of the Galerkin Finite Element Method for linear boundary value problems from an engineering perspective. Emphasis is given to the theoretical foundation of the method rooted in Functional Analysis using a language accessible to engineers. The book discusses standard procedures for applying the method to time-dependent and nonlinear problems and addresses essential aspects of applying the method to non-linear dynamics and multi-physics problems. It also provides several hand-calculation exercises as well as specific computer exercises with didactic character. About one fourth of the exercises reveal common pitfalls and sources of errors when applying the method. Carefully selected literature recommendations for further studies are provided at the end of each chapter. The reader is expected to have prior knowledge in engineering mathematics, in particular real analysis and linear algebra. The elements of algebra and analysis required in the main part of the book are presented in corresponding sections of the appendix. Students should already have an education in strength of materials or another

engineering field, such as heat or mass transport, which discusses boundary value problems for simple geometries and boundary conditions.

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