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   Soggetti   Mechanical engineering
                        Applied mathematics
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                        Computer simulation
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   Nota di contenuto   Preface -- List of Problems Solved -- Introduction -- Fundamentals of
                        ANSYS® -- Fundamentals of Discretization -- ANSYS® Preprocessor --
                        ANSYS® Solution And Postprocessing -- Finite Element Equations --
                        Use of Commands in ANSYS® -- Linear Structural Analysis -- Linear
                        Analysis of Field Problems -- Nonlinear Structural Analysis --
                        Advanced Topics In ANSYS® -- References -- Index. .

   Sommario/riassunto   This textbook offers theoretical and practical knowledge of the finite
                        element method. The book equips readers with the skills required to
                        analyze engineering problems using ANSYS®, a commercially available
                        FEA program. Revised and updated, this new edition presents the most
                        current ANSYS® commands and ANSYS® screen shots, as well as
                        modeling steps for each example problem. This self-contained,

introductory text minimizes the need for additional reference material by covering both the fundamental topics in finite element methods and advanced topics concerning modeling and analysis. It focuses on the use of ANSYS® through both the Graphics User Interface (GUI) and the ANSYS® Parametric Design Language (APDL). Extensive examples from a range of engineering disciplines are presented in a straightforward, step-by-step fashion. Key topics include: • An introduction to FEM • Fundamentals and analysis capabilities of ANSYS® • Fundamentals of discretization and approximation functions • Modeling techniques and mesh generation in ANSYS® • Weighted residuals and minimum potential energy • Development of macro files • Linear structural analysis • Heat transfer and moisture diffusion • Nonlinear structural problems • Advanced subjects such as submodeling, substructuring, interaction with external files, and modification of ANSYS®-GUI Electronic supplementary material for using ANSYS® can be found at springer page. This convenient online feature, which includes color figures, screen shots and input files for sample problems, allows for regeneration on the reader's own computer. Students, researchers, and practitioners alike will find this an essential guide to predicting and simulating the physical behavior of complex engineering systems." .