development of effective finite element models using commercial software. Discusses the critical issues encountered in structural analysis. Maintains a clear focus on advanced numerical modeling.


This book describes the application of nonlinear static and dynamic analysis for the design, maintenance and seismic strengthening of reinforced concrete structures. The latest structural and RC constitutive modelling techniques are described in detail, with particular attention given to multi-dimensional cracking and damage assessment, and their practical applications for performance-based design. Other subjects covered include 2D/3D analysis techniques, bond and tension stiffness, shear transfer, compression and confinement. It can be used in conjunction with WCOMD and COM3 software. Nonlinear Mechanics of Reinforced Concrete presents a practical methodology for structural engineers, graduate students and researchers concerned with the design and maintenance of concrete structures.

Nonlinear Finite Element Analysis of Composite and Reinforced Concrete Beams presents advanced methods and techniques for the analysis of composite and FRP reinforced concrete beams. The title introduces detailed numerical modeling methods and the modeling of the structural behavior of composite beams, including critical interfacial bond-slip behavior. It covers a new family of composite beam elements developed by the authors. Other sections cover nonlinear finite element analysis procedures and the numerical modeling techniques used in commercial finite element software that will be of particular interest to engineers and researchers executing numerical simulations. Gives advanced methods and techniques for the analysis of composite and fiber Reinforced Plastic (FRP) and reinforced concrete beams. Presents new composite beam elements developed by the authors. Introduces numerical techniques for the development of effective finite element models using commercial software. Discusses the critical issues encountered in structural analysis. Maintains a clear focus on advanced numerical modeling.

The EURO-C conference series (Split 1984, Zell am See 1990, Innsbruck 1998, Badgastein 1998, Mayrhofen 2006, Schladming 2010, St. Anton am Arlberg 2014) brings together researchers and practising engineers concerned with theoretical, algorithmic and validation aspects associated with computational simulations of concrete and

Forty scientists working in 13 different countries detail in this work the most recent advances in seismic design and performance assessment of reinforced concrete buildings. It is a valuable contribution in the mitigation of natural disasters.