

Μη Γραμμική Ευστάθεια Κατασκευών

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Abstract

This book is addressed to undergraduate and postgraduate students, who are taught Structural Stability issues in their course of study, as well as researchers who deal with problems of Non-Linear Statics and Dynamic Stability. After an Introduction and a brief presentation of the basic concepts, principles and applications of the Linear Theory of Elastic Stability, the book is made up of eight more Chapters, which refer to nonlinear stability, static and dynamic. Chapter 3 lists the fundamental material of Non-Linear Static and Chapter 4 presents the role of mechanical simulations and through them the distinct critical points and the simple and coupled branches are demonstrated. In Chapter 5, the material of the previous two is related to the Theory of Catastrophes, with an emphasis on the peak-type anomaly, while the 6th

Chapter deals with the nonlinear stability of ordinary continuous systems - rod carriers. The next three Chapters refer to problems of nonlinear dynamic stability of discrete and continuous, conservative and non-damped systems and the concepts of local and global dynamic bifurcations, deflection, flapping and instability under parametric excitations are given. In Chapter 10 elements of elastoplastic buckling are listed and the whole material is related to the stability and collapse of steel structures, with an emphasis on the existing Codes and the influence of various parameters on these phenomena is given. The 11th Chapter deals with the most modern computational techniques for the study of static and dynamic stability of structural systems and finally in the Appendix, elements of the Calculus of Changes are given.

