



Simple Deformation and Vibration by Fea

By Gunnar Backstrom

GB Publishing, United States, 2006. Paperback. Book Condition: New. 230 x 156 mm. Language: English . Brand New Book ***** Print on Demand *****.Simple Fields of Physics by FEA Understanding Elasticity the Easy Way Elastic deformation is of enormous importance in mechanical engineering and has long been a prominent item in technical education. The theory profits from major developments during the 1800s. Stress and strain do not transform as directly as vectors, and the subject is somewhat counter-intuitive. A century ago one had to resort to graphical devices, such as the Mohr circle, to handle elasticity concepts. Most textbooks still use this antiquated technique. With the advent of the PC it became possible to transform stress and strain analytically and to plot results in informative ways. In addition, elastic deformation could then be studied by means of finite element analysis, which dramatically extended the range of applications. The present volume contains other enhancements with respect to ordinary textbooks. Problems of torsion and warping are solved by PDEs, even for hollow shafts. There is also a treatise on thermoelastic deformation. Many examples are in three dimensions. Finally, wave motion is studied by a slight extension of the PDE formalism. The latter...



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