

ENGLISH SUMMARY

UDK 531.1/.3:519.6:624.072.2

SALONEN, EERO-MATTI, The penalty function method. Rakenteiden Mekaniikka 11 (1978)3, p. 1...22

In the article the use of the penalty function method in connection with constrained variational problems is discussed. Advantages and disadvantages of the method compared with the Lagrange multiplier method are first explained in the discrete cases employing a simple spring system as an application. Thereafter the continuum case is studied with the help of a beam in bending. Continuum problems are discretized by the finite element method. Details necessary for obtaining successful discrete models are discussed in connection with plates in bending and with the incompressible plane strain case.

UDK 624.07:531.15

PRAMILA, ANTTI, A structural interpretation of the artifices used in determination of natural angular frequencies of unsupported structures. Rakenteiden Mekaniikka 11(1978)3, p. 23...34

The article is concerned with the artifices used in frequency analysis of unsupported or only partially supported structures. An interpretation of the artifices is given, which shows the close relationship between the artifices and elastic supporting. The somewhat deficient recommendations given earlier about the choice of the constant of shifting are re-examined and new recommendations are suggested. Two examples demonstrating the effect of the choice of the constant of shifting are given.

UDK 531.3:625.7.032.32

KARHUNEN, JOUKO and KARJALAINEN, JUSSI A., On the response of a vehicle excited by the road surface undulations. Rakenteiden Mekaniikka 11 (1978)3, p. 35...39

The article deals with the response of a vehicle to random undulations of a road surface when the vehicle travels with constant velocity. A linear two-mass-model is used to simulate the vehicle. Mean squares and response spectra of the displacements are obtained when the profile spectrum of the road is known.