

A_B_S_T_R_A_C_T

The present thesis is confined to analytical investigations of transverse vibration problems of thin elastic isotropic and orthotropic plates including a sandwich plate, of various shapes subject to different boundary conditions and loads. Plate thicknesses are either uniform or variable. Effects of foundations and holes are also considered in some cases. The work is mainly devoted to non-linear problems except the only solitary case of a thermally induced linear vibration.

The thesis is presented in two chapters. Chapter I deals with the problem of thermally induced vibrations. The non-linear problems are included in Chapter II sub-divided into two sections. Section A contains the problems solved by applying von Kármán equations while problems in Section B have been analysed by Berger's method.

Results obtained for different problems have been compared with those of standard works and discussed. Graphical presentations are given in all the cases investigated. A comparative study of different problems has been made graphically through common parametrisation.