

FUNDAMENTAL NATURAL FREQUENCY FOR ISOTOPIC RECTANGULAR PLATE SIMPLY SUPPORTED ON THREE EDGES WITH ONE EDGE FREE OF SUPPORT (SSSF PLATE)

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ABSTRACT

The paper presents a theoretical formulation based on polynomial shape function and application of Ritz method. In this study, the free vibration of simply supported panel with one free edge was analyzed. The Polynomial shape function derived was substituted into the potential energy functional, which was minimized to obtain the fundamental natural frequency. This research focused on aspect ratio from 0.1 to 2.0 with 0.1 increments. The values of fundamental natural frequencies of the first mode obtained were compared with those of previous research works. The present values for aspect ratio 0.5, 1.0 and 1.3 were 4.9469, 12.3435 and 19.1582 respectively.

KEYWORDS: Fundamental Natural Frequency, SSSF Plate, Ritz Method, Polynomial Shape Function