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EXPERIMENTAL INVESTIGATION ON VIBRATION BEHAVIOUR OF THE CURVED COMPOSITE BEAM OF DIFFERENT RADIUS OF CURVATURE

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ABSTRACT

In this study, Structural vibration behavior of the glass fiber reinforced polymer (GFRP) curved composite beams is investigated experimentally. Curved laminated composite beams are fabricated with different radius of curvature (R -0.7 m, 0.9 m) of the same volume fraction with the chord length of 30 cm. In experimentation, the free vibration analysis of the GFRP curved and flat composite beam is performed on different support conditions such as clamped at both ends (C-C) and clamped free (C-F), and the structural performance composite beam is studied in terms of the modal natural frequencies. From the present work, it has been concluded that the natural frequencies of the curved composite beam are decreased with increasing the radius of curvature and the least performance is observed at the flat beam case also the effective structural rigidity is observed with clamped at both end condition. There better stiffness and load-carrying capability of the curved composite beam gain a wide scope in all engineering structures.

Keywords: Curved composites, Experimentation, Free vibration, and Natural frequencies.