In this study, the stability of a generic three-layered truncated conical shell containing a functionally graded (FG) layer subjected to uniform external pressure is investigated. The material properties of the functionally graded layer are assumed to vary continuously through the thickness of the shell. The variation of the properties follows an arbitrary distribution in terms of the volume fractions of the constituents. The fundamental relations, the stability and compatibility equations of three-layered truncated conical shells containing a FG layer are obtained, first. Then, applying Galerkin's method, the closed form solution for critical external pressure is obtained. The results show that the critical parameters are affected by the configurations of the constituent materials, the variations of the thickness of the FG layer and the variation of the shell geometry. Comparing the results with those in the literature validates the present analysis.