The linear parametric instability (PI) of laminated inhomogeneous orthotropic truncated conical shells (LIHOCSs) under periodic axial load depending on the time, are studied using the first order shear deformation theory (FOSDT). After deriving basic equations for LIHOCSs, the Galerkin method is used to find the ordinary differential equation of motion. The equation of motion is transformed into the Mathieu equation, in which the PI is studied using the Bolotin method. Comparing the concrete cases of current work with the other studies, the validity of the obtained formulas is proved. Finally, the effects of various parameters, such as lay-up, inhomogeneity, and loading factors on the boundaries of parametric instability regions (PIDs) for LIHOCSs, have been studied in detail.