The Effect of Symmetrical and Asymmetrical Shape in Buckling Strength on Fixed Offshore Platform

Muhammad Zubair Muis Alie, Juswan, Silfiani Daud, Widya Tami Sriadi and Ratnawati
Department of Naval Architect and Ocean Engineering, Engineering Faculty, Hasanuddin University
Makassar, South Sulawesi, Indonesia

ABSTRACT

This paper discusses the configuration effect of the symmetrical and asymmetrical shape tubular member in buckling strength on fixed offshore platform. Two kinds of offshore structures are taken to be considered in the analysis. The axial and lateral loads are imposed to jacket legs and others structural components. The material and dimensions are assumed to be constant and homogenous. The boundary conditions are idealized to be fixed at bottom level. To assess buckling strength, the Finite Element Method (FEM) is used. As a fundamental case, buckling strength is performed by considering two dimensional planes into consideration (2D). In this case, the critical buckling load and stress-strain curve is achieved. The result obtained by FE Analysis is compared with the analytical solution.

KEY WORDS: Buckling strength; fixed jacket structure; symmetric; asymmetric; finite element method.