

An integrated CFD simulation tool in naval architecture and offshore (NAO) engineering

Abstract

Integrated Computational Fluid Dynamic as a simulation tool for optimization of ship and offshore designs have been developed with higher reliability and accuracy by many institutions. The Department of Marine Technology at the Faculty of Mechanical Engineering, University Teknologi Malaysia has recently developed an integrated CFD simulation tool using potential theory, which intends to upgrade student's level understanding the application of fluid dynamic to ship and offshore structure designs. This paper discusses the application of integrated Naval Architecture and Offshore (NAO) CFD simulation tool for hull performance analysis in term of wave resistance. Detailed discussion on pressure distribution around the hull and generated wave profile by the hull are also presented. As a case study, hull performance of VLCC tanker is simulated using the tool.