

UWA Industry-Focused Offshore Engineering PhD in Fluid-Soil-Structure Interaction



We are seeking highly capable and self-motivated PhD candidate for a PhD project in assessing the effects of fluid-soil-structure interaction on trench formation around moorings and risers (see right). This project will be undertaken within The Industrial Transformation Research Hub for Offshore Floating Facilities (OFFshore ITRH: see <http://offshorehub.edu.au/> for further information and other PhD opportunities).

The Offshore ITRH is partnered with Shell, Woodside, Bureau Veritas and Lloyds Register who will provide additional training and access to their proprietary technology and data in order to add industry know how and practical relevance to your research.

To be eligible for the PhD positions you should have a strong first degree that included courses on hydrodynamics, fluid mechanics and preferably offshore/ocean engineering. You should be looking to complete your PhD degree on a topic with strong relevance to industry, starting your study early 2018.

Applicants are expected to be eligible for a UWA scholarship, e.g. an International Research Training Program (non-Australians) or Research Training Program (Australians) scholarship (see <http://www.scholarships.uwa.edu.au/> for more information), although this requirement may be waived in exceptional cases. For those applicants who secure a UWA scholarship, top-up funding is available which brings the total tax free stipend to AUD\$35,500.

Further information: Prospective PhD candidates may contact Prof Christophe Gaudin at christophe.gaudin@uwa.edu.au for additional information on the proposed research project.

To apply: Please send your application including resume, full academic transcripts, details of any papers you have authored and the results of any English test you have sat within the last 2 years (such as IELTS or TOEFL – not needed for Australian citizens) to admin-cofs@uwa.edu.au.

Research Project: Mechanisms of trench formation around risers and moorings – This project will investigate the underlying mechanisms that lead to trench formation within the touchdown zone of steel catenary risers and around mooring chains of semi-taut anchoring systems. The work will primarily focus on experimental modelling of risers and chains penetrating cyclically into fine-grained sediment to explore the interaction between both sediment erosion and plastic deformation, remoulding, and reconsolidation of the seabed. The project will also investigate fundamental aspects of the interaction between soil-structure interaction and material erosion, which has wider implications throughout the offshore industry. The goal of this research is to develop a simple design methodology to predict trenching rates and ultimate trench shape around infrastructure as a function of system configuration, motion and sediment properties. Project outputs will be compared with available field observations of trenches and ongoing work within the OFFshore ITRH investigating trench evolution using computational fluid dynamics.

