Research Studentship in Offshore Foundations

Department of Engineering Science, University of Oxford

3.5 Year Industrial CASE studentship, in association with Mott MacDonald, leading to a DPhil, available from EPSRC (subject to eligibility requirements below).

Research Area

Offshore wind is a growing area in the UK, and in Europe, with more than 1000 turbines already installed and 1000s more expected to be installed in the next decade. The foundation is a crucial component of an offshore wind turbine structure; it influences the dynamic and fatigue response of the turbine and tower as well determining, to a certain extent, the structural layout of the support structure and the procedures that need to be adopted during construction and installation. The costs associated with the construction and installation of the foundation can have significant implications for the economic viability of any offshore wind farm project.

Offshore wind turbines are typically founded on monopile foundations. (A monopile is, essentially, a large diameter steel tube). It is expected that this foundation type will continue to be used for many future wind farms. As a consequence, there is a significant research effort, both in industry and in various universities, on developing an improved understanding of the response of monopile foundations to the various loads (e.g. associated with wind and wave) that are imposed on the turbine and the support structure. Current research efforts at Oxford include the Pile Soil Analysis (PISA) project, a large industry funded program aimed at developing better monopile design methods validated by large scale field testing. Other areas of work at Oxford explore numerical modelling and laboratory scale testing, principally aimed at understanding the way in which monopiles respond to cyclic lateral loading. This Research Studentship provides support for a graduate student to work on a research project in the general area of offshore foundations, within the Oxford Civil Engineering Research Group. Subject to satisfactory progress, it is expected that the project will lead to leading to the award of a D.Phil. degree.

This project is being jointly undertaken by the University of Oxford (Professor Byron Byrne) and Mott MacDonald (Dr Barnali Ghosh) through a studentship funded under the EPSRC Industrial CASE award scheme. The student will be a member of the Oxford Civil Research Group where there is an active community of students working on different aspects of offshore foundations particularly for offshore wind; further information can be found at *http://www.eng.ox.ac.uk/civil*. The research group also co-hosts the Centre for Doctoral Training in Renewable Energy Marine Structures (http://www.rems-cdt.ac.uk/), and there may be an opportunity to interact with that program.

Award Value

The studentship covers University fees at the level set for UK students plus a stipend (tax-free maintenance grant) of £14,057 p.a. for the first year, and at least this amount for a further two and a half years. The studentship covers the payment of college fees (c £2848 p.a.). A stipend top-up from the company funding will be available (amount to be confirmed).

Eligibility

To find out if you are eligible for a full award (stipend and fees) or a fees only award, candidates should follow this link: https://www.epsrc.ac.uk/skills/students/help/eligibility/

Candidate Requirements

Prospective candidates will be judged according to how well they meet the following criteria:

- An upper second class honours degree, or equivalent, in Engineering or a relevant subject (e.g. Physics, Mathematics, Geological Sciences);
- Good mathematical and computational skills as applied to civil engineering problems;
- Enthusiasm to undertake the research required for a doctorate;
- Good English written and spoken communication skills;
- Evidence of high self-motivation and good organisational skills;
- Excellent record of academic and/or professional achievement.

The following skills are desirable but not essential:

- Detailed knowledge of geotechnical engineering;
- Specialist skills such as use of FE programs or laboratory based work;
- Ability to communicate scientific ideas clearly, both orally and in writing;
- Interpersonal skills necessary to contribute effectively in a large research group.

Application Procedure

To find out further details email a CV to Byron Byrne – byron.byrne@eng.ox.ac.uk
There will be an initial deadline of 31 July 2015.