Engineering Doctorate in Sustainability for Engineering and Energy Systems

Knowledge extraction and development of a decision support system for conceptual design of sustainable liquid nitrogen gas terminals under risk and uncertainty

The University of Surrey hosts a prestigious EPSRC-funded Industrial Doctorate Centre offering an EngD in Sustainability for Engineering and Energy Systems (see www.surrey.ac.uk/engd/sees). The EngD is awarded for doctoral research carried out within a framework of relevant industrial experience and professional development courses. The four-year programme provides at least the intellectual challenge of a PhD and EngD Research Engineers (REs) will normally spend approximately three-quarters of their time based with their sponsor.

A studentship is available with HR Wallingford Ltd, a world renowned research and consultancy company specialising in activities relating to the water environment. This EngD research project will develop a methodology for supporting decisions relating to the optimum design of liquid natural gas (LNG) terminals. LNG is increasingly in demand as a more environmentally friendly source of energy than heavy oils such as diesel and petrol. In areas that are not accessible through pipelines, natural gas is liquefied at its originating source for the purposes of transportation. The primary method of LNG transportation is by sea, and marine LNG terminals are therefore an indispensable component of the LNG supply chain.

Due to the increase in demand for LNG, numerous new terminals are under development. Designing these terminals is a complex process, involving consideration of a range of sometimes competing performance objectives and a range of physical processes with significant uncertainties. Currently numerical models exist for examining the different components and aspects associated with terminal design but there are, however, no models that enable all of these aspects to be considered within a complete system. This project will therefore aim to develop a numerical simulation model of the LNG design process which incorporates hydraulic models to account for waves, tides, underwater currents etc, whole life costing models for the construction and maintenance of the terminal etc.

The Research Engineer recruited will be based at HR Wallingford in Wallingford, Oxfordshire.

Person Specification
We are looking for a self motivated individual with good interpersonal and organisational skills and an ability to work independently with limited supervision. The suitable candidate will ideally hold a masters degree in civil or industrial engineering with an emphasis on mathematics and software programming, although candidates with other relevant background degrees relating to mathematics or physical sciences will be considered. Some experience in risk and uncertainty analysis and optimisation algorithm design support tools would be advantageous but not essential. They will also demonstrate a keen interest and good level of understanding of sustainable development.

Funding Details
The current stipends for EngD studentships are £19,600 per annum or above (normally tax-free). To be eligible for funding, applicants must demonstrate a relevant connection with the UK (see www.epsrc.ac.uk/PostgraduateTraining/StudentEligibility.htm).

Closing date: 9am, 21st February 2011. Interviews are expected to take place on 1st March 2011 at HR Wallingford in Oxfordshire.

For further project details and an application pack, please contact:

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