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**Faculty of Engineering Science and Technology  
Department of Production and Quality Engineering**

## **PhD Position within Component-based Modeling and Simulation for Drilling Automation and Crane Systems (IVT-76/16)**

### **IVT 76/16 PhD Position within Component-based Modeling and Simulation for Drilling Automation and Crane Systems**

The Faculty of Engineering Science and Technology (<http://www.ntnu.edu/ivt>) at the Norwegian University of Science and Technology (NTNU) has a vacancy for one PhD candidate position at the Department of Production and Quality Engineering (<http://www.ntnu.edu/ipk>). The PhD candidate will be affiliated with the Production Systems group.

#### **SFI Offshore Mechatronics**

The research center SFI Offshore Mechatronics officially commenced on 1 April 2015. The vision for the SFI is to become the international knowledge and research hub for the next generation of advanced offshore mechatronic systems for autonomous operation and condition monitoring of topside drilling systems under the control of land-based operation centers, to ensure safe and efficient operation in deeper water and in harsh environments.

#### **Work description**

Simulation of major offshore operations may involve different types of simulators. Such simulators can be run in combination in some cases, while in other cases the simulators must be integrated. It would be useful to have design methods and guidelines for how to combine different types of simulators for different simulation tasks. The PhD project will investigate simulator design for systems that are described by FEM, CFD, signal-oriented modules and component-oriented modules. This includes the foundations for design rules for this type of simulator implementation. In particular, it will be investigated when different simulators can be run in combination, and when simulators must be integrated in, e.g., a Modelica or Simulink implementation. The study will include the use of the Modelica framework to define component-oriented model libraries.

The position is awarded for a period of 3 years.

#### **Qualifications**

A master's degree in Mechanical Engineering or Control Systems with good results is required, with an average grade B or better as measured in ECTS (European Credit Transfer System) grades, or an education at the equivalent level. A research-oriented master thesis within one of these areas is expected. For candidates who are writing their MSc thesis at NTNU it is possible to start in the position before the MSc thesis is submitted.

Applicants who do not master a Scandinavian language must provide evidence of good English language skills, written and spoken. The following tests can be used as such documentation: TOEFL, IELTS or Cambridge Certificate in Advanced English (CAE) or Cambridge Certificate of Proficiency in English (CPE). Minimum scores are:

- TOEFL: 600 (paper-based test), 92 (Internet-based test)
- IELTS: 6.5, with no section lower than 5.5 (only Academic IELTS test accepted)
- CAE/CPE: grade B or A

In extraordinary circumstances, formal documentation of language skills can be relinquished. In such cases the candidate's language skills will be assessed in a personal interview.

#### **Conditions of appointment:**

PhD Candidates are remunerated in code 1017, and are normally remunerated at wage level 50, gross NOK 430 200 before tax. There will be a 2 % deduction to the Norwegian Public Service Pension Fund from gross wage.

Engagement as a PhD Candidate is done in accordance with "Regulation concerning terms and conditions of employment for the posts of post-doctoral research fellow, research fellow, research assistant and resident", given by the Ministry of Education and Research of 19.07.2010. The goal of the positions is to obtain a PhD degree. Applicants will engage in an organized PhD training program, and appointment requires approval of the applicants plan for a PhD study within three months from the date of commencement.

See <http://www.ntnu.edu/ivt/phd> for more information.

The engagement is to be made in accordance with the regulations in force concerning State Employees and Civil Servants. The positions adhere to the Norwegian Government's policy of balanced ethnicity, age and gender. Women are encouraged to apply. According to the new Freedom of Information Act, information concerning the applicant may be made public even if the applicant has requested not to be included in the list of applicants.

Applications must contain information of educational background and work experience, reference person(s), CV, possible publications and other scientific works, certified copies of transcripts and reference letter(s).

Please contact professor Olav Egeland for more information about the position: olav.egeland@ntnu.no , phone number + 4790160008. Applications and attachments have to be submitted electronically through this page. Applications submitted elsewhere will not be considered. Mark the application with ref.no **IVT 76/16**.

Anticipated commencement: Q3 2016 in agreement with the Department  
Application deadline: 3 June 2016

Jobbnorge-ID: 125746, Søknadsfrist: Søknadsfristen er gått ut