

Jobbnorge-ID: 148664

Søknadsfrist: Avsluttet

Nettside:

Omfang:

Varighet:

PhD position in Composite Blades for Ship Propellers (IV-95/18)

The Faculty of Engineering Science (<http://www.ntnu.edu/iv>) at the Norwegian University of Science and Technology (NTNU) has a vacancy for one PhD position in "Flexible Composite Propeller Blades" at the Department of Mechanical and Industrial Engineering. The PhD position is for 3 years.

Work description

Ship propellers are traditionally made of metal and are rather stiff, such that their elastic deformation is usually negligible. In this project, we aim at developing flexible propellers, which adapt their shape to different load cases and flow fields through elastic deformation imposed by the hydrodynamic loads.

The goal of the PhD project is to develop new marine propeller blades and to apply anisotropic composite materials (fiber reinforced plastics) that can change the shape of a propeller blade during a revolution in order to smoothen out transient cavitation and shaft load dynamics. The design goal for a composite propeller is to have dynamic adaptation of the blade load to a periodically varying wake. The composite shall be designed by finite element analysis (FEM) optimizing the layout of the composite taking into account the full anisotropic characteristics of the material. Some experimental work is planned to check and improve the theoretical predictions.

The PhD project is part of the KPN research project "Fleksprop", financed by the Norwegian Research Council and Rolls-Royce Marine AS. The project is managed by SINTEF Ocean. The NTNU Departments of Mechanical and Industrial Engineering and the Department of Marine Technology and Rolls-Royce Marine are participating in the project. The PhD work will take advantage of collaboration with researchers at NTNU, SINTEF Ocean and Rolls-Royce Marine AS.

Requirements for the position

The position requires a Master's degree in mechanical or civil engineering or a similar relevant area, with an average grade of B or better according to either NTNU's or the ECTS grading system. Candidates from universities outside Norway are kindly requested to send a Diploma Supplement or a similar document, which describes in detail the study and grade system and the rights for further studies associated with the obtained degree: ec.europa.eu/education/tools/diploma-supplement_en.htm

The candidate must have excellent analytical and modeling skills combined with interest and experience in experimental work. The successful applicants are motivated and ambitious students with excellent grades. Proficiency to carry out goal-oriented work, good skills to deliver oral and written presentations of research results (good writing skills in English are essential), and good cooperation abilities will be emphasized.

The following subject areas will be important for the project. Please state your experience with all of them (given in alphabetical order):

Buckling
Cohesive Elements
Composite micro mechanics
Computer Programming Skills
Creep
Dynamic analysis of structures
Fatigue
Finite element analysis
Fracture mechanics
Laminate theory
Progressive Failure Analysis
Python programming language (or similar)
Rate dependent properties
Viscoelasticity

The PhD candidates will be required to work in Trondheim at the Department of Mechanical and Industrial Engineering. A statement on when the applicant can start in the position if selected should be supplied.

Conditions of appointment

PhD Candidates are remunerated in code 1017, and are normally remunerated with a gross salary NOK 436 900 before tax deduction. There will be a 2 % deduction to the Norwegian Public Service Pension Fund from gross wage. As a member of the Norwegian Public Service Pension Fund you are offered:

- A good pension scheme
- A favorable housing loan interest

- Good insurance schemes

Applicants for a PhD will have to engage in an organized PhD training program, and appointment in the positions requires approval of the applicants plan and qualifications for the PhD study within three months from the date of commencement of the PhD position. See <https://www.ntnu.edu/iv/phd-information> and <https://innsida.ntnu.no/doktorgrad> 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. Persons with immigrant background are encouraged to apply. NTNU's objective is to increase the number of females in scientific positions and female applicants are therefore 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.

Application requirements

The application should contain:

- CV, it should include: relevant formal educational background, diploma grade, participation in research projects, work experience, skills and any other relevant experience.
- Certified diploma (note that diploma supplement or similar has to be attached for degrees outside Norway and master diplomas from China have to be verified by CDGDC (<http://www.chinadegrees.cn/en/>)).
- Certified grade transcripts and documentation of an average grade of B or better as described above.
- Three reference letters.
- Motivational letter of maximum two pages describing why the applicant wants to come to NTNU, the applicant's view of research challenges within the area of the PhD position and how the applicant's competence can contribute to solve these challenges.
- Statement of experience with regard to the list of important subject areas mentioned above.
- If applicable, list of publications, conferences presentations and other relevant scientific work
- Proficiency in English, best shown by providing TOEFL scores.
- Graduate Record Examination (GRE) Test scores or equivalent would strengthen the application.

Applications should be submitted electronically through www.jobbnorge.no. Applications submitted elsewhere will not be considered.

For further information about the position, please contact Professor Andreas Echtermeyer, andreas.echtermeyer@ntnu.no.

Mark the application with ref.no IV-95/18

Anticipated commencement: 1 May or 15 August 2017 (to be agreed with the Department)

Application deadline: 3 April 2018

Tilleggsinformasjon

Arbeidssted: