Jobbnorge ID: 283295
Deadline: 8/15/2025
Website: http://www.ntnu.no
Scope: Fulltime
Duration: Temporary

The Department of Marine Technology has a vacancy for

PhD Candidate in Marine Electrification - Smart Onboard Energy Systems

This is NTNU

NTNU is a broad-based university with a technical-scientific profile and a focus in professional education. The university is located in three cities with headquarters in Trondheim.

At NTNU, 9,000 employees and 43,000 students work to create knowledge for a better world.

You will find more information about working at NTNU and the application process here.

Video: https://youtu.be/Xt-yHCN5QS0

About the position

The PhD project at the Department of Marine Technology is part of ongoing European initiatives to accelerate the transition to sustainable maritime transport.

The central objective is to develop smart onboard power systems enabling efficient electrification and decarbonization of marine vessels. Cutting-edge technologies are considered such as onboard power electronics, medium voltage DC (MVDC) grid architectures, and solid-state transformers, along with sustainable energy conversion systems such as fuel cells and batteries. Intelligent control and management systems will be designed to enhance efficiency, sustainability, and seamless integration. Developed models and strategies will be validated on laboratory testbeds and eventually demonstrated on ship in collaboration with industry partners.

You will be part of the Marine Electrification Lab at NTNU, a world-leading research environment, and will collaborate closely with top-tier academic and industrial partners in the maritime and energy sectors.

The PhD project is supervised by Professor Mehdi Zadeh. Your immediate Line Manager is the Head of the Department.

About the project

Funded by the European Commission under Horizon Europe, STEESMAT project is advancing the next generation of marine energy innovation through state-of-the-art power electronics and solid-state transformers, onboard DC power systems, sustainable fuels, and intelligent control and management systems: https://steesmat.eu/

Duties of the position

- Complete doctoral education and fulfill all requirements to obtain a PhD degree.
- Carry out high-quality research within the defined project framework.
- Publish research findings in top-tier peer-reviewed journals and relevant conferences.
- Actively contribute to the activities of the research group at NTNU and associated European project consortiums.
- Participate in dissemination, outreach, and career-promoting activities, including workshops, seminars, and other relevant events.
- Contribute to a collaborative and interdisciplinary research environment.

Be prepared for changes to your work duties after employment.

Required selection criteria

- Academically relevant background within marine technology and cybernetics, electrical engineering, control engineering, computer science, applied mathematics, or a related discipline.
- Master's degree or equivalent within one of the specified disciplines. Your course of study must correspond to a five-year Norwegian MSc, where 120 credits have been obtained at master's level. Master's students can apply, but the master's degree must be obtained and documented before starting the position.
- Strong academic background from your previous studies and have an average grade from your Master's degree study, or equivalent education, which is equal to B or better compared to NTNU's grading scale. If you do not have letter grades from previous studies, you must have an equally good academic foundation. If you have a weaker grade background, you may be considered if you can document that you are particularly suitable for a PhD education.
- Meet the requirements for admission to the faculty's Doctoral Programme in Engineering
- Good English communication skills, both written and verbal. Applicants from non-English speaking countries outside Europe must present an official language test report. Approved tests are TOEFL, IELTS, Cambridge Certificate in Advanced English (CAE) or Cambridge Certificate of Proficiency in English (CPE). Minimum scores are:
  - TOEFL: 600 (paper-based) or 92 (internet-based)
  - IELTS: 6.5, with no section lower than 5.5 (only Academic IELTS test accepted)
  - CAE/CPE: grade B or A.

PLEASE NOTE: For detailed information about what the application must contain, see paragraph “About the application”.
The appointment is to be made in accordance with Regulations for the Universities and Colleges Act (university and colleges regulations) and Regulations for the degrees philosophiae doctor (ph.d.) and philosophiae doctor (ph.d.) in artistic development work at the Norwegian University of Science and Technology (NTNU) for general criteria for the position.

Preferred selection criteria

- Demonstrated knowledge and experience in electrical system modeling and analysis, applied control, power electronic systems, optimization techniques, and/or machine learning.
- Experience with marine power and control systems.
- Interest and experience with experimental work and laboratory-based research.
- Proficiency in data analysis and relevant programming tools (Python, MATLAB, etc.).
- Relevant experience from industry and/or working in collaborative multi-partner projects.

Personal characteristics

To complete a high-quality doctoral degree (PhD), it is important that you are able to:

- Work in a structured way, set goals and make plans to achieve them.
- Engage actively in collaborative settings and contribute constructively with feedback and discussion.
- Demonstrate resilience and the ability to work effectively under pressure or when facing challenges.
- Show flexibility and openness to adapt project plans as research progresses.
- Possess strong analytical skills.

Emphasis will be placed on personal qualities.

We offer

- An exciting job with an important mission in society
- Developing tasks in a strong and international professional environment
- Career guidance and follow-up during the PhD period
- Open and inclusive working environment with committed colleagues
- As a public employee, you have favourable benefits as a member of the Norwegian Public Service Pension Fund (SPK)

You will be employed as a PhD Candidate at NTNU and will have access to employee benefits and discounts.

Diversity

Diversity is a strength, and at NTNU we aim to be an employer that reflects the diversity in society and that makes use of the potential of the population's collective skills. Our vision is Knowledge for a better world and our values are creative, critical, constructive and respectful. We believe that an organization that is equal, diverse and gender-balanced is essential for us to achieve our goals.

We strive to attract employees with different skills, life experiences and perspectives to contribute to even better problem solving of our societal mission in research and education.

If you think this position is relevant and interesting, we encourage you to apply, regardless of gender, functional ability and cultural background,

or whether you have been out of work for a period of time.

Salary and conditions

In the position of PhD Candidate, code 1017, your gross salary will normally be NOK 541 800 per annum depending on qualifications and seniority. A 2% statutory contribution to the State Pension Fund is deducted from the salary.

The employment period is 3 years.

For employment as a PhD Candidate, it is a prerequisite that you gain admission to the PhD programme in Engineering within three months of your employment contract start date, and that you participate in an organized doctoral programme throughout the period of employment.

The position is conditional on external funding.

As an employee at NTNU, it is important that you keep yourself up to date with academic and organizational changes and adapt to them.

For the necessary academic and social interaction, it is a prerequisite that you are physically present and available to the institution on a daily basis.

The appointment is carried out in accordance with the principles of the State Employees Act, and Export control (legislation that regulates the export of knowledge, technology and services). Candidates who, after assessment of the application and attachments, are considered to be in conflict with the criteria in the latter act, will not be able to be employed.

About the application

The attachments (including a description of your scientific work) must accompany the application as these documents form the basis of the application assessment. The documents must be in English or Norwegian/a Scandinavian language.

Please note: the application will only be assessed on the basis of the information we have received by the application deadline. Therefore, make sure that your application clearly shows how your skills and experience meet the criteria described above. The application and all attachments must be sent electronically via Jobbnorge.no. If you are invited to an interview, you must bring certified copies of certificates and diplomas upon request.

The application must include:

- CV.
- Transcripts and diplomas for Bachelor's and Master's degrees.
- Copy of final Master's thesis. If you are currently in the process of completing a Master's degree, you can attach a draft of the thesis. Documentation of a completed Master's degree must be presented before taking up the position.
- Short letter of motivation (400 words/1 page).
- Relevant publications or other related research works.
- Any certificates relevant for the position.
- Names and contact information of three relevant referees.

If all, or parts, of your education has been taken abroad, we also ask you to attach documentation of the scope and quality of your entire education, both Bachelor's and Master's education, in addition to other higher education. If your institution uses “diploma supplement” (normal for most European institutions), you must attach this. A description of the documentation required can also be found here. If you already have a statement from Norwegian Directorate for Higher Education and Skills (HK-dir), please attach this as well.

Joint works will be considered. If it is difficult to identify your contribution to joint work, you must attach a brief description of your participation.

When assessing the best qualified, we emphasize necessary qualifications such as education, experience and personal suitability. Motivation for the position, ambitions and potential for research will also count when assessing the candidates.

NTNU recognizes a wide range of academic contributions and has committed itself to The San Francisco Declaration on Research Assessment and CoARA (responsible assessment of research and recognition of a greater breadth of academic contributions in accordance with NTNU's social mission).

General information

A public list of applicants with name, age, job title and municipality of residence is prepared after the application deadline. If you wish to be exempt from entry on the public applicant list, this must be justified. Assessment will be made in accordance with current legislation. You will be notified if the exemption is not granted.

If you think this position looks interesting and in line with your qualifications, you are welcome to apply.

If you have any questions about the position, please contact Prof. Mehdi Zadeh, email: mehdi.zadeh@ntnu.no.

If you have any questions about the recruitment process, please contact Senior Executive Officer HR Marit Gjersvold, e-mail: marit.gjersvold@ntnu.no.

Application deadline: 15.08.2025

For practical information about working at NTNU, please visit this webpage.

The city of Trondheim is a modern European city with a rich cultural scene. Trondheim is the tech capital of Norway with a population of 200,000. The Norwegian welfare state, including healthcare, schools, kindergartens and overall equality, is probably the best of its kind in the world. Professional subsidized day-care for children is easily available. Furthermore, Trondheim offers great opportunities for education (including international schools) and possibilities to enjoy nature, culture and family life and has low crime rates and clean air quality.

NTNU - knowledge for a better world

NTNU - knowledge for a better world

The Norwegian University of Science and Technology (NTNU) creates knowledge for a better world and solutions that can change everyday life.

Department of Marine Technology

We develop methods and technology related to the blue economy: oil and gas extraction at sea, ship technology and the equipment industry, fisheries and aquaculture. We also have a strong commitment to the development of sustainable solutions for offshore renewable energy, coastal infrastructure, and marine robotics. Marine technology helps to solve major global challenges related to the environment, climate, energy, food and efficient transport. The Department of Marine Technology is one of eight departments in the Faculty of Engineering.

Additional information

Place of service:

Høgskoleringen 1 7491 Trondheim (Trondheim Municipality)