Jobbnorge ID: 283556
Deadline: 9/1/2025
Website: https://www.usn.no/
Scope: Fulltime
Duration: Temporary

The Faculty of Technology, Natural Sciences and Maritime Sciences have a vacancy for a position as

PhD Research Fellow in Pioneering AI and Sustainable Materials for Next-Gen. Offshore Wind Turbines

About the position

The Faculty of Technology, Natural Sciences and Maritime Sciences has a vacancy for a 100% position as PhD Research Fellow in “Pioneering AI and Sustainable Materials for Next-Generation Offshore Wind Turbines” from November 1st 2025, or by agreement.

The position is at the Department of Process, Energy and Environmental Technology and reports to the Head of Department.
The place of employment is Porsgrunn.

The employment period will be three years of full time with no teaching obligations, and there is a premise for employment that the PhD Research Fellow is enrolled in USN’s PhD-program in Technology within three months of accession in the position.

About the PhD-project

Offshore wind energy is fundamental to the global green transition; however, the harsh marine environment presents challenges such as corrosion and extreme dynamic loading, which degrade turbine components and necessitate innovative material solutions. This project tackles this challenge head-on. The project vision is to develop a pioneering AI-driven methodology for designing Functionally Graded Materials (FGMs) specifically tailored to enhance the performance, durability, and environmental footprint of offshore wind turbine components. By integrating advanced computational tools with systems engineering and sustainability principles, your work will contribute to creating a closed-loop material lifecycle for renewable energy infrastructure.

The overall objective of the PhD work is to integrate three disciplines: AI-Driven FGM Design, Systems Engineering Framework, and Sustainability and Circular Economy by Design. This is a forward-looking innovation that embeds sustainability and circular economy principles directly into the material design process.

Some potential key research objectives:

- AI Model Development: Create machine learning models to predict FGM properties based on compositional gradients and processing conditions.
- Material Optimization: Use optimization algorithms to design FGMs that meet demanding performance criteria like fatigue resistance and durability.
- Systems Integration: Apply a systems engineering approach to align the FGM design with the entire turbine lifecycle requirements, including manufacturability and cost.
- Sustainability and Circular Economy: Incorporate circular economy principles by designing FGMs for recyclability or reuse and assessing their environmental impact.
- Validation and Verification: Validate analytical and numerical simulations to ensure the solutions apply to real-world offshore environments.

The work will take place at USN/TNM Porsgrunn.

You will join the REACT-Lab (Renewable Energy and Advanced Construction Technologies Laboratory) and the URGENT (USN research group in Energy and Environmental Technology) research group.

Qualifications

Required selection criterias

- A Master’s degree (or equivalent) in Materials Science, Mechanical Engineering, Civil Engineering, Computer Science, or a related engineering/technology field
- A strong academic record
- Documented proficiency in English (Nordic applicants may submit their high school diploma as proof)
- Ability to collaborate and work effectively in an international and interdisciplinary research environment
- Applicants with a strong background in STEM fields (e.g., Mechanical and Civil engineering, Physics, environmental engineering, Mathematics, Computer Science, or Machine Learning)
- The Master’s thesis must be included in the application

- It is a requirement that the successful applicant is granted admission to the university's doctoral program in Technology. According to the formal Ph.D. regulations, an average grade B or better from the master's degree, in addition to a grade B or better of the final master thesis, is required
- You must meet the requirements for admission to the faculty's Doctoral Program in Technology

Preferred selection criterias

- A demonstrated interest and/or experience in two or more of the following areas: Renewable Energy, Artificial Intelligence/Machine Learning, Materials Science, Systems Engineering, and Sustainability
- Strong computational and programming skills
- An innovative, solution-oriented mindset and the ability to work effectively in a collaborative, team-based environment
- A passion for tackling complex challenges to contribute to a more sustainable future

Personal characteristics

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

- Work independently, but also participate in teamwork
- Work in a structured way, set goals and make plans to achieve them
- Present and discuss your research with other professionals
- Get involved and contribute constructively with feedback
- Work constructively under pressure or in the face of adversity
- Show curiosity and a strong motivation for the subject
- Analyze data, assess different perspectives and draw well-founded conclusions
- Be flexible and open to adjusting the plan for the project as needed
- Have the professional and personal qualifications to complete the doctoral education within the employment period

Emphasis will be placed on personal qualities.

Documentation of skills in English language

Strong communication skills in English language skills are required for participation in the doctoral program. International applicants must document this with a valid certificate from one of the following tests:

- TOEFL - Test of English as a Foreign Language, Internet-Based Test (IBT). Minimum result: 90
- IELTS - International English Language Testing Service. Minimum result: 6.5
- Certificate in Advanced English (CAE) eller Certificate of Proficiency in English (CPE) from Cambridge University
- PTE Academic - Pearson Test of English Academic. Minimum result: 62

The following applicants are exempt from the above requirements:

- applicants with one year of completed university studies in Australia, Canada, Ireland, New Zealand, the United Kingdom, the United States
- applicants with a completed master's degree with English as the language of instruction in an EU/EEA country

The documents must be submitted no later than one week before the interview can be conducted. This will be requested if you are invited to an interview.

We offer

- An exciting job with an important mission for society
- A stimulating and growing research environment, with good opportunities to develop your career and your academic skills
- An open and inclusive working environment with committed colleagues
- Attractive welfare benefits in the State Pension Plan
- Opportunity for physical activities within working hours

Salary

PhD Research Fellow (code 1017): NOK 550 800 a year. Further promotion will be based on time served in the position.

A statutory contribution to the state pension plan will be deducted from the employee's salary.

Other information

The Academic Appointments Board for PhD Research Fellowships is responsible for the appointment. An expert assessment of applicants will be carried out. The candidates deemed best qualified will be invited to an interview.

The person appointed must comply with the laws, regulations and agreements that apply at any given time to the post. Please note that approved work permit is a prerequisite for the employment.

According to its human resources policy, the University of South-Eastern Norway targets a balanced gender composition and aims to recruit persons with a background as an immigrant.

The University contributes to the Inkluderingsdugnaden (a voluntary scheme to promote inclusion), and it is our aim that our employees, to the fullest extent possible, shall reflect the diversity of the general population. We therefore encourage qualified applicants with disabilities to apply for the post. The University will facilitate the workplace for employees with disabilities.

Pursuant to section 25, 2nd paragraph of the Freedom of Information Act, information on the applicant may be disclosed even if the applicant has requested not be included on the list of applicants. Applicants will be notified if such requests are not allowed.

License or security clearance requirements

Employment in this position requires a license under the Export Control Act and the Export Control Regulations. Applicants must therefore state their citizenship and the citizenship of any spouse/partner in the application. Citizenship must also be documented, for example by attaching a copy of their passport. Applicants who hold citizenship in countries that make it likely that a license will not be granted, may be excluded from the further application process. The same applies to applicants who have a spouse/partner with citizenship in such countries, or where it is likely that a license will not be granted for other reasons.

Contact information

For more information about the position, please contact:
Assoc. Prof. Hadi Amlashi, telephone +47 31 00 91 68, e-mail: hadi.amlashi@usn.no
Prof. Lars Erik Øi, telephone: +47 35 57 51 41, e-mail: lars.oi@usn.no

For questions regarding the recruitment process, please contact:

HR Advisor Live Rykkje Lindgård
Email: liverl@usn.no

How to apply

The University of South-Eastern Norway makes use of online application management. Applicants to the post must register their application and CV with enclosures online via the Jobbnorge recruitment portal by clicking on the link on the right-hand side - "Søk stillingen" (Apply for the post).

The following documents shall be attached to the online application:

- Transcripts and diplomas of bachelor's and master's Degrees (120 ECTS)
- Other relevant certificates (if applicable, must be specified)
- A 1 page motivation letter
- Documentation of English proficiency
- Any scientific publications and a list of these
- Three references (contact information)

Please note that all documents must be in a Scandinavian language or in English. Any translations must be certified.

If your higher education is from a university outside of Norway, we require it to be recognized by the Norwegian Directorate of Higher Education and Skills. You must apply for the recognition before the application deadline for this position expires. Add a receipt on your application or recognition when applying. The recognition must be sent to us and is a requirement for being hired.

The research area for the position may include technologies referred to in the Ministry's export control regulations. Relevant license or security clearances may therefore be required.

The application will be assessed on the basis of the attached documentation as requested above. Each applicant is responsible for ensuring that the required documentation has been uploaded with the application deadline.

The University has been awarded a Charter & Code certificate by the European Commission, and is entitled to use the HR Excellence in Research (HRS4R) logo. The University is also a member of the EURAXESS network, which contributes to good working conditions for mobile researchers.

About us

The University of Southeastern Norway (USN) ranks as the country's fourth largest higher education institution. We are a vibrant community of approximately 18,000 students and 1,900 employees.

Video: https://vimeo.com/898549899/60305e2540

About USN

At USN you'll contribute to a mission that matters. The University of Southeastern Norway was established in 2018, following the merger of several smaller university colleges, some with historical roots dating back to the 17th and 18th centuries. We are committed to collaborative problem-solving, aiming to provide solutions that benefit our communities - locally as well as globally.

Our diverse campuses are located from the beautiful fjords to the snow-covered mountains. USN spans three Norwegian counties, with campuses in Bø, Drammen, Horten, Kongsberg, Notodden, Porsgrunn, Ringerike, and Rauland.

Wherever you're located, you will engage in meaningful work amidst a thriving student culture and innovative research environments. Our university offers a wide range of high-quality and internationally recognized academic programs.With a strong emphasis on profession-oriented and socially relevant education, we prepare our students for the workforce and equip them with the necessary skills to make a positive impact on society.

At USN, we deeply value and cultivate our relationships with local communities. Our staff and students are actively engaged in a variety of

projects that address societal challenges, driving change and innovation. We place a strong emphasis on diversity, inclusion, and equal opportunity, and we strive to shape future leaders, innovators, and change-makers.

Read more about working for us: (link to) Work for us - Universitetet i Sørøst-Norge

Additional information

Contact person:

Lars Erik Øi, Professor
Phone: | E-mail: lars.oi@usn.no

Place of service:

Kjølnes Ring 56 3918 Porsgrunn (Porsgrunn Municipality)