

Jobbnorge ID: 274968
Deadline: 3/15/2025
Website: <http://www.ntnu.no>
Scope: Fulltime
Duration: Temporary

The Department of Mechanical and Industrial Engineering has a vacancy for a

PhD Candidate for NATECH risk modeling and assessment of the offshore industry in green transition

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

Are you motivated to take a step towards a doctorate and open up exciting career opportunities? As a PhD Candidate with us, you will work to achieve your doctorate, and at the same time gain valuable experience that qualifies you for a further career in higher education and research, in and outside academia.

A PhD position is available at the Department of Mechanical and Industrial Engineering with the RAMS (Reliability, availability, maintainability and safety) research group.

Your immediate leader will be the Head of Department. You will be supervised by Professor Yiliu Liu.

About the project

Natural hazard triggered technological (NATECH) accidents, led by extreme events such as typhoons, hurricanes, storms, and rouge waves, present significant threats to offshore platforms, pipelines, other offshore facilities that handle, store, or transport hazardous substances. The threat of NATECH accidents is further magnified in the offshore oil & gas industry when developing new technologies and innovative applications for green transition. This PhD project is aiming to develop new knowledge for modeling, analyzing, and controlling the cascading process from the occurrence of natural events to the offshore accidents that threat human safety and environment and/or result in huge economic loss, and understand the interdependencies in such potential NATECH accidents. The project will also account for the protective measures and contingency plans to the offshore NATECH events, and then develop a risk-informed multidisciplinary decision-making method for preparing these events.

Duties of the position

- complete the doctoral education until obtaining a doctorate
- reviewing the state-of-art green transition technologies in the offshore industry
- investigating the technical vulnerabilities and building the cascading process of specific NATECH events in the offshore industry
- developing indicators and algorithms for analyzing the frequency and impact of typical NATECH events
- developing a risk-informed multidisciplinary decision-making method for the offshore industry and illustrating the effectiveness of such a method with case studies

Be prepared for changes to your work duties after employment.

Required selection criteria

- you must have an academically relevant background within system modeling and reliability analysis with programming skills
- you must have a Master's degree in industrial and systems engineering, management science, mechanical engineering, energy and marine technologies or equivalent. Your course of study must correspond to a five-year Norwegian course, 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.

- you must have a 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.
- you must meet the requirements for admission to [the faculty's Doctoral Programme in Engineering](#)
- good written and oral English language skills

PLEASE NOTE: For detailed information about what the application must contain, see paragraph "About the application".

If you cannot document skills in Norwegian, Swedish or Danish at [level A2](#) upon employment, you must complete [Norwegian courses](#) corresponding to at least 15 credits before the end of the employment period. NTNU will facilitate this.

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

- good knowledge of complex system analysis, operational research, and optimization.
- knowledge of data analysis, including statistics, and machine learning techniques.

Personal characteristics

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

- and willingly conduct research in a multidisciplinary setting and team
- be motivated, enthusiastic and result oriented
- work in a team-based environment, but also be able to work independently
- communicate well both orally and written

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
- [Working capital](#) that can be used to implement the project
- [Mentor programme](#) as a [new employee at NTNU](#)
- 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.

At NTNU we want to increase the proportion of women in scientific positions. We have a number of [measures](#) to promote equality.

Salary and conditions

In the position of PhD Candidate, code 1017, your gross salary will normally be NOK 536 200,- 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. If learning Norwegian (level A2 corresponding to at least 15 credits) is to be completed before the end of the employment period, the employment period can be extended by 10 weeks after completed and documented the Norwegian course.

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 Norwegian/a Scandinavian language or English.

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. The application must include:

- transcripts and diplomas for Bachelor's and Master's degrees
- CV and certificates
- copy of Master's thesis. If you have recently submitted your Master's thesis, you can attach a draft of the thesis. Documentation of a completed Master's degree must be presented before taking up the position.
- research plan or project proposal (maximum 2 pages, Times New Roman or similar Font 11, Single spacing)
- cover letter justifying your interest and fit for the position
- possibly publications etc. other relevant research work
- 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 Professor Yiliu Liu, e-mail: yiliu.liu@ntnu.no.

If you have any questions about the recruitment process, please contact HR Consultant Hedda Winnberg, e-mail: hedda.winnberg@ntnu.no.

Application deadline: 15.03.2025

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

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

Department of Mechanical and Industrial Engineering

We educate graduates who can create new products, operate and maintain products, and manage projects. The Department has a variety of bachelor's and master's degree programmes. We conduct wide-ranging research in fields such as technology, energy, product quality and development, and productivity. [The Department of Mechanical and Industrial Engineering](#) is one of eight departments in [the Faculty of Engineering](#).

Additional information

Place of service:

Richard Birkelands vei 2B 7034 Trondheim (Trondheim Municipality)