Jobbnorge ID: 301175
Deadline: 5/21/2026
Website: http://www.ntnu.no
Scope: Fulltime
Duration: Temporary

The Department of Energy and Process Engineering has a vacancy for a

PhD Candidate in Energy Process Design and Optimization

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

In the Sustainable Energy Systems research group, we are working on integration and optimization of efficient, flexible and sustainable energy systems. Our research includes development of concepts for energy storage and processes for conversion of renewable energy to fuels (Power-to-X and Bio-to-X). The PhD Candidate will work on systems level modelling, design and optimization for such processes. The research will focus on developing methods for integration, flexibility and sustainability, in order to handle variable and uncertain operating conditions. Process insight should be utilized to develop methods for design and optimization of integrated systems. The research may include both use of commercial simulation tools and in-house model development for unit operations, as well as hybrid models. The project is open for different applications. Hence, the applicant should submit a project outline including suggestions for applications and integration opportunities, and suggestions for required development in methodology.

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.

Your supervisor will be Associate Professor Bjørn Austbø.

Duties of the position

- Complete the doctoral education until obtaining a doctorate
- Carry out research of good quality within the framework described above
- Academic publications and popular science dissemination
- Participate in the Sustainable Energy Systems Research Group
- Participate in international activities such as conferences and/or research stays at foreign educational institutions

Be prepared for changes to your work duties after employment.

Required selection criteria

- You must have a relevant Master's degree in process systems engineering, chemical engineering, energy engineering or equivalent. Experience in process engineering or a closely related field is required. Your course of study must correspond to a five-year Norwegian course, where 120 credits have been obtained at master's level. Master students can apply, but the master's degree must be obtained and documented before starting the position and no later than August 2026.
- 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 Doctoral Programme of the Faculty of Engineering.
- Good oral and written presentation skills in English

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 NTNUs guidelines for recruitment positions for general criteria for the position.

Preferred selection criteria

- Experience in process simulation, integration and optimization
- Proficiency in process simulation software (Aspen Plus, Aspen HYSYS, etc.)
- Proficiency in at least one common programming language (Python, C++, etc.)
- Experience in mathematical programming and/or optimization software such Pyomo, GAMS or similar
- Experience in exergy analysis, techno-economic analysis and/or life cycle assessment

Personal characteristics

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

- Operate independently and think critically
- Work in a structured way, set goals and make plans to achieve them
- Acquire new knowledge quickly and use existing knowledge in new ways
- Work constructively under pressure or in the face of adversity
- Initiate activities and be creative

Emphasis will be placed on personal qualities.

We offer

Evaluate and remove/add what is relevant for the position.

- 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
- Support as a new employee at NTNU
- Favorable terms as a member of the Norwegian Public Service Pension Fund (SPK)
- Free Norwegian language training at a basic level (A2)

As a PhD Candidate at NTNU, you will have access to employee benefits.

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.

The Department of Energy and Process Engineering (EPT) has established EPT Women in Science. The group is focused on supporting female Research Assistants, PhD Candidates, Postdoctoral Fellows and permanent academic employees within the Department. This support aims to help develop the academic careers of female employees, and is also made visible to our student body, to encourage them to consider an academic path. As part of the EPT Women in Science initiative, we continue to build on our international network, inviting prominent female academics within and beyond the field of Engineering to speak at our events.

Salary and conditions

In the position of PhD Candidate, code 1017, your gross salary will normally be NOK 550 800,-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 the doctoral work. (A minimum of three work years of the total term period must be dedicated to doctoral work.)

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.

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 professional 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 bein 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 and diplomas upon request.

The application must include:

- Transcripts and diplomas for Bachelor's and Master's degrees
- CV
- 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.
- Project outline containing proposals for an overall description of research questions, theoretical perspectives, methodological design for the project and progress plan (maximum 1500 words/4 pages). Project outlines mainly created using an AI-powered chatbot or other generative AI tools will not be considered valid
- Short letter of motivation (400 words/1 page)
- Possibly publications or other relevant research work, including a short description of your own contributions to the work and the impact on the field
- Possibly certificates
- Names and contact information of three relevant referees

If all, or parts, of your education have 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 work 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 Associate Professor Bjørn Austbø, bjorn.austbo@ntnu.no, telephone +47 73412718.

If you have any questions about the recruitment process, please contact the HR team by emailing hr@ept.ntnu.no

Application deadline: 21.05.2026

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

The City of Trondheim is located on the Trondheim Fjord in mid-Norway. It is a modern Scandinavian city with a unique cultural scene. Trondheim has a growing and increasingly diverse population, currently of around 200 000, and is known as the tech capital of Norway. The Norwegian welfare state, including healthcare, schools and kindergartens, is among the best of its kind in the world. Professional, subsidized wrap-around care for school children in grades 1-4 is easily available. There are two International Schools, and the public school system offers language support to international children whose families have relocated to Trondheim. The city has low crime rates, clean air and water, and offers great opportunities for enjoying nature and culture.

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 Energy and Process Engineering

We conduct research and teaching covering the entire energy chain, from resources to the end-user. We look at how energy is produced and used by humans and machines in a sustainable way with regard to health, climate change and the resource base. The Department of Energy and Process Engineering is one of eight departments in the Faculty of Engineering.

Additional information

Place of service:

Høgskoleringen 1 7491 Trondheim (Trondheim Municipality)