

Jobbnorge ID: 281550
Deadline: 6/15/2025
Website: <http://www.ntnu.no>
Scope: Fulltime
Duration: Temporary

We are looking for a

PhD Candidate in Structural/computational mechanics for material efficient design of structures

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.

Your immediate leader will be Professor Bjørn Skallerud.

About the project

This PhD project addresses how one can reduce material consumption in load carrying structures by use of more advanced modeling and simulation methods than those used in current structural design. There is a potential of significant reduction in material used in large building designs. This leads to reduced CO₂ production and provides an important contribution from the building industry to reduce greenhouse gases. A challenge with use of more advanced methods is to ensure that the safety level regarding structural failure modes is maintained. The project will investigate how one can utilize project specific material data (e.g. stress-strain curves for representative batches) and nonlinear finite element methods to show potential material savings. Structural system performance is considered by investigating the benefits of redundancy, ductility and interaction of different system failure modes. Some model structures are used as test cases, followed by analyzing a few existing buildings. In the latter case it is of interest to compare the weight of the structural materials from the original design and the weight one can achieve using more advanced methods. Uncertainties in the required input data are accounted for in the evaluations. The focus will be on metallic structural materials. Supervision team is Professor Bjørn Skallerud, Professor Jochen Köhler and Associate Professor Marcin Luczkowski.

Duties of the position

- Complete the doctoral education until obtaining a doctorate
- Carry out research of high quality within the framework described above
- Academic publications and popular science dissemination
- Participate in the research group
- Participate in international activities such as conferences and/or research stays at foreign educational institutions
- Other career-promoting work

Be prepared for changes to your work duties after employment.

Required selection criteria

- You must have an academically relevant background within Structural engineering, Mechanical engineering or Computational solid mechanics.
- You must have a Master's degree. 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 1. October 2025

- 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 PhD programme in engineering](#).
- You must be fluent in spoken and written 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 [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

- Experience in Python programming or a similar programming language
- Experience in non-linear finite element analysis and solid mechanics
- Experience with 3D computer-aided design (CAD)
- Experience in structural design, design format, and standards (e.g. Eurocodes)

Personal characteristics

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

- Willing to work both independently and to collaborate with other researchers
- Motivated and ambitious
- Curious, creative, and eager to learn.

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 (a 4-year period with 25% career promotion work may be considered depending on qualifications).

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 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](https://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
- 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.
- Short letter of motivation (400 words/1 page)
- Possibly publications etc. other relevant research work
- Possibly certificates
- 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 Bjørn Skallerud, professor, bjorn.skallerud@ntnu.no.

If you have any questions about the recruitment process, please contact Kristine Grønvold, HR consultant, kristine.gronvold@ntnu.no.

Application deadline: 15.06.2025

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 Structural Engineering

We teach mechanical engineering, engineering and ICT, and civil and environmental engineering. The Department conducts internationally leading research and participates in several large national research projects. [The Department of Structural Engineering](#) is one of eight departments in [the Faculty of Engineering](#).

Additional information

Place of service:

Høgskoleringen 1 7491 Trondheim (Trondheim Municipality)