Jobbnorge ID: 276353
Deadline: 3/31/2025
Website: http://www.ntnu.no
Scope: Fulltime
Duration: Temporary

The Department of Structural Engineering has a vacancy for a

PhD-candidate in Structural Assessment of Alkali-Silica-Affected Concrete 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 the Head of Department.

We have a vacancy for a PhD-candidate at the Department of Structural Engineering which has about 120 employees, half of them PhD Students and about 17 Postdocs and researchers.

The current position will be affiliated to the Concrete group which is a team of scientists dedicated to the study of all aspects of concrete. The Concrete group conduct research on concrete from material to structural level based on theoretical, numerical and experimental investigations. The Concrete group is involved in several national and international research projects, it has a close collaboration with the industry, and it has extended laboratory facilities with a rich history.

The candidate is expected to conduct research within the field Structural assessment of Alkali-Silica-Reactions (ASR) affected concrete structures, where the current project has developed a strategy and approach combining field investigations, laboratory testing, and structural analysis. Therefore, it is important that the candidate has background and motivation for working within these key topics:

1. Laboratory experiments carried out on ASR-exposed specimens from laboratory cast concrete (typically exposed to accelerated conditions, RH=100% and T=38oC), cores drilled from real structures as well as tests on structural members.
2. Structural analysis of concrete bridges including effects of ASR within an engineering approach utilizing Finite Element Analysis, where the ASR-expansion and the effects on the material properties are implemented based on material models deduced from laboratory experiments, tests of cores drilled from real structures and field investigations of real structures.

The main project results will be verified by applying the gained knowledge on selected ASR-affected bridges ("demonstrators"). The candidate should also contribute to development of guidelines for how to evaluate the damage consequences assessing the structures serviceability, remaining service life and capacity.

The candidate will work with a team of experienced researchers within the fields of structural design and concrete materials and will do research in close collaboration with the Norwegian authorities for roads and railways, SINTEF, three foreign universities (Laval and Ottawa in Canada and Gustav Eiffel University in France), and the concrete industry.

The position is funded by the research project “Management and extended service life of infrastructures affected by Alkali-Silica Reaction (MESLA) chaired by NTNU and granted by the Norwegian Research Council.

Your immediate leader will be the supervising professor Terje Kanstad.

Duties of the position

- perform research and report progress on a regular basis in agreement with the project team
- experimental and theoretical research according to the project plan and the project objectives
- complete the necessary course/training to work in the laboratory
- laboratory work
- communication and dissemination of research results under supervision

Be prepared for changes to your work duties after employment.

Required selection criteria

- You must have a professionally relevant background in civil engineering, within structural analysis and design
- Your education must correspond to a five-year Norwegian degree programme, where 120 credits are obtained at master's level
- You must have a strong academic background from your previous studies and an average grade from the master's degree program, or equivalent education, which is equal to B or better compared with NTNU's grading scale. If you do not have letter grades from previous studies, you must have an equally good academic basis. If you have a weaker grade background, you may be assessed if you can document that you are particularly suitable for a PhD education.
- Applicants must meet the criteria for admission to NTNU's PhD program.
- You must meet the requirements for admission to the faculty's doctoral program.
- Good oral and written presentation skills in Norwegian or another Scandinavian language.
- Excellent written and oral English language skills.

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

- proven skills/track record in the relevant areas of research, or work experience from the industry
- interest in theoretical as well as experimental studies
- keen interest in experimental and practical engineering research work
- knowledge of programming/software, MATLAB, Python, FEA software, LabView, etc.

Personal characteristics

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

- ambitious and motivated for research work in this field
- good communication and dissemination skills
- well-organized and able to plan and conduct laboratory activities
- team worker that can cooperate in interdisciplinary team
- good analytical and critical thinking skills
- genuine interest in research and willingness 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
- 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 for the doctoral work, with possibilities for 1 year of career promotion work in addition, depending on the candidate's qualifications. (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.

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 withthe principles of the State Employees Act, and Export control(legislation that regulates the export of knowledge, technologyand 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 The application must include:

- Transcripts and diplomas for Bachelor's and Master's degrees
- CV
- Research interest/area and motivation (maximum 1 page A4 size)
- Academic works - published or unpublished - that you would like to be considered in the assessment
- Name and address of three 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 Terje Kanstad, email: terje.kanstad@ntnu.no.

If you have any questions about the recruitment process, please contact HR Consultant June Hovde, e-mail: june.b.hovde@ntnu.no.

Application deadline: 31.03.2025

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

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)