

Assistant/Associate Professor of Experimental Soil Mechanics

Department/faculty: Faculty Civil Engineering and Geosciences

Level: Doctorate

Working hours: 36-40 hours weekly

Contract: Tenure Track

Salary: 3807 - 5922 euros monthly (full-time basis)

Faculty of Civil Engineering and Geosciences

The Department of Geoscience & Engineering encompasses 5 sections: Applied Geology, Applied Geophysics & Petrophysics, Geo-Engineering, Resource Engineering, and Reservoir Engineering. Within the department there is considerable scope and encouragement for inter-disciplinary research.

The advertised position will reside with the Section of Geo-Engineering which has 13 full-time and 5 part-time academic staff, and 30 PhD and post-doctoral researchers. Areas of expertise include soil mechanics, dykes and embankments, foundation engineering, underground space technology, engineering geology, and geo-environmental engineering. There are extensive experimental laboratory facilities, including large-scale soil-structure interaction testing facilities and a geotechnical centrifuge. The section has close links with the onshore and offshore industries and with the Dutch research institute Deltares.

The Department is part of the Faculty of Civil Engineering and Geosciences (CEG). CEG is committed to outstanding international research and education in the field of civil engineering, applied earth sciences, traffic and transport, water technology and delta technology. The research covers global social issues and is closely connected to education as well as the work of a wide range of knowledge institutions. CEG is convinced that Open Science helps to realise these goals and supports its scientists in integrating Open Science in their research practice. The Faculty of CEG comprises 28 research groups in the following seven departments: Materials Mechanics Management & Design, Engineering Structures, Geoscience & Engineering, Geoscience & Remote Sensing, Transport & Planning, Hydraulic Engineering, and Water Management.

Job description

Would you like to be our new Assistant or Associate Professor of Experimental Soil Mechanics with a focus on physical modelling?

Increasing climate stresses and expanding use of the shallow subsurface are posing new challenges related to the performance of geo-structures including those for land protection, transport infrastructure, offshore facilities and (renewable) energy production. Understanding the interplay between environmental pressures, construction activities and the mechanical behaviour of soils is of crucial relevance to address these challenges and to reduce the risk of unsustainable development.

The position is proposed to improve our understanding of the fundamental mechanical behaviour of geotechnical structures undergoing ageing and cyclic loads, and to provide new solutions to the present and future challenges of the built (including offshore) environment. The focus is on developing new physical modelling strategies to better assess and design geotechnical structures and infrastructure subjected to increasing anthropogenic and environmental (e.g. wind, wave, hydraulic, thermal, seismic) loadings, and to study the impact of soil-fluid-structure interaction processes. Emerging sensor and imaging technologies, as well as advanced data analysis, offer the opportunity to develop a new generation of experimental techniques for geotechnical testing in the laboratory and in the field.

To achieve these goals, you will need to expand the world class laboratory facilities already available in the Department of Geoscience & Engineering. The department is making a major investment in soil testing facilities for geotechnical engineering and, in 2020, appointed a new assistant professor focussing on soil element multi-physics testing. The advertised position concerns the physical modelling of soil structures, and facilities already available include a 1.22 m radius geotechnical centrifuge and a large 5×2×2 m geotechnical testing tank. There is also close collaboration with our near neighbours Deltares, including the use of a new 5 m radius centrifuge, and potential access to major facilities at 10 international geotechnical partners through the new European Union (H2020) research project GEOLAB. We aim for an assistant or associate professor with the capacities and desire to develop a fundamental research programme of international standing with a strong footing in the Dutch Geotechnical community. The appointee will join a strong research team of existing researchers and academics, and develop collaborations within the faculty (e.g. with Resource Engineering, Applied Geology, Geophysics, Structural Engineering and Hydraulic Engineering), other faculties and universities.

This requires proven research qualities in combination with the capacity to reach out to the construction industry and the wider geotechnical engineering community. You are expected to attract research funding from a multitude of sources. Therefore you are comfortable finding new connections and communicating easily with external parties, colleagues and students. You will become a prominent knowledge reference for the Dutch industry in relation to applying physical modelling techniques to the conception and analysis of innovative geo-engineering solutions.

Education is a key responsibility of the successful candidate and you are expected to actively contribute to the education portfolio of the section, department and faculty at all academic levels (BSc, MSc and PhD). This includes: initiating, organizing and contributing to the development and teaching of graduate courses in our new MSc track in Geotechnical Engineering within the MSc programme of Civil Engineering; preparing and assessing assignments and exam papers; and supervision of BSc and MSc student dissertations. Another key responsibility is contributing to the organizational and administrative activities and committees specifically related to education within the department and faculty.

Requirements

You should have a PhD in Geotechnical Engineering or another related discipline, with a strong expertise in soil mechanics and physical modelling of geotechnical structures in the laboratory. You should demonstrate outstanding research potential and have published in peer-reviewed, international scientific journals. You should enjoy pioneering and exploring new paths.

You should have a clear vision on modern education in engineering. You can inspire students and develop their passion for and knowledge of geotechnical engineering.

You need to demonstrate that you have the potential to initiate, acquire, execute and coordinate research projects.

You should be a real team builder and have good communication skills in English. In order to develop close working relationships with the Dutch industry it is essential that you can speak Dutch, or are willing to learn Dutch within the first two years.

Conditions of employment

At the start of the tenure-track you will be appointed as Assistant Professor or Associate Professor for the duration of six years. You will meet with the section leader and department leader and you will agree upon expected performance and (soft) skills. You will receive a start-up package. You will also receive formal feedback on performance and skills during annual assessment meetings and the mid-term evaluation. If the performance and skills are evaluated positively at the end of the tenure track, you will be appointed in a permanent Assistant or Associate Professor position.

TU Delft offers a customisable compensation package, a discount for health insurance and sport memberships, and a monthly work costs contribution. Flexible work schedules can be arranged and part-time employment is possible. An International Children's Centre offers childcare and an international primary school. Dual Career Services offers support to accompanying partners. Salary and benefits are in accordance with the Collective Labour Agreement for Dutch Universities.

TU Delft sets specific standards for the English competency of the teaching staff. TU Delft offers training to improve English competency. TU Delft also offers training in Dutch.

Inspiring, excellent education is our central aim. If you do not yet have your teaching certificate, we allow you up to three years to obtain this.

Information and application

For more information about this vacancy, you can contact Prof. Dr. M. A. Hicks, head of the Section of Geo-Engineering via m.a.hicks@tudelft.nl or tel: +31152787433. Or you can contact Prof. dr. ir. T. J. Heimovaara, head of the Department of Geoscience and Engineering, t.j.heimovaara@tudelft.nl, tel: +31152781969.

Are you interested in this vacancy? Please apply before **7 February 2022** via the application button at:

<https://www.tudelft.nl/over-tu-delft/werken-bij-tu-delft/vacatures/details?jobId=5110&jobTitle=Assistant%20%2F%20Associate%20Professor%20of%20Experimental%20Soil%20Mechanics>

and upload a detailed CV, along with a short letter of motivation and a personal research and teaching statement (max 3 pages in total), as well as the contact information of two persons who can provide references, a publications list, an abstract of your MSc and PhD thesis and two selected publications.

If your MSc diploma and transcript are not in Dutch, English, French or German and you will be the selected candidate, the TU Delft will ask you to deliver a certified translation in case you will be appointed.

TU Delft creates equal opportunities and encourages women to apply.