

2 PhD Students in Soil Mechanics

Faculty/department Civil Engineering and Geosciences
Level Master degree
Maximum employment 38-40 hours per week (1 FTE)
Duration of contract 4 years
Salary scale €2325 to €2972 per month gross

Civil Engineering and Geosciences

The Department of Geoscience and Engineering resides within the Faculty of Civil Engineering and Geosciences, and encompasses 5 sections: Applied Geology; Applied Petrophysics and Geophysics; Geo-Engineering; Resource Engineering; and Petroleum Engineering. Current collaborations between Geo-Engineering and the wider Faculty include the Section of Offshore Engineering, and the Departments of Structural Engineering, Hydraulic Engineering, and Geoscience and Remote Sensing.

The Section of Geo-Engineering has 9 full-time and 6 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, as well as excellent computing facilities including access to national High Performance Computing networks.

Job description

Applications are invited for 2 PhD students to be based within the Section of Geo-Engineering, to work on the SOFTTOP research project funded by the Dutch Organisation for Research NWO, as part of the DeepNL research initiative. The study investigates how non-linearity and degradation of deltaic laminated sands and organic clays affect the dynamic response of soil layers, under the typical repeated but short duration loads from induced earthquakes. The study is based on experimental testing and numerical modelling, and includes a multiscale analysis of spatial variations in the subsoil. The aim of the project is to develop advanced models able to lead to more accurate predictions of deformations at the ground surface.

PhD 1 will be responsible for conducting and analysing laboratory tests on laminated sands under cyclic loading, for the development and/or implementation of appropriate models of soil behaviour, and for the elaboration of laboratory data using numerical modelling. The research will include the validation of models using field data from the Groningen region of the Netherlands and from New Zealand.

PhD 2 is expected to contribute to the development of a new testing apparatus equipped with advanced sensors, specifically aimed at studying the dynamic response of organic soils, to devise optimal testing protocols, and to perform an experimental study of the dynamic response of these soils in view of their modelling. The work involves innovative design of experimental testing approaches, and requires a thorough understanding of experimental methods as well as of coupled soil behaviour under dynamic loads.

The successful candidates will be part of a team supported by 4 academic members of staff and 1 Postdoc, who will be engaged in the laboratory and numerical developments.

Additional information available at <http://www.tudelft.nl/ceg/SOFTTOP>.

Requirements

Applicants should possess a very good first degree in Civil Engineering or other related discipline. An aptitude for experimental testing and interpretation of data is essential. This includes an interest in the design of experimental facilities and protocols. The successful candidates are also expected to contribute to the numerical modelling; hence, a strong background in soil mechanics is highly appreciated. Communication skills are important, and applicants should have a high level of proficiency in written and spoken English. The successful candidates will be expected to cooperate closely with other members of the research team.

Conditions of employment

TU Delft offers an attractive benefits package, including a flexible work week and the option of assembling a customised compensation and benefits package (the 'IKA'). Salary and benefits are in accordance with the Collective Labour Agreement for Dutch Universities.

The minimum salary is your salary in your first year. The salary mentioned as the maximum will be your salary in your fourth year.

As a PhD candidate you will be enrolled in the TU Delft Graduate School. The TU Delft Graduate School provides an inspiring research environment; an excellent team of supervisors, academic staff and a mentor; and a Doctoral Education Programme aimed at developing your transferable, discipline-related and research skills.

Information and application

More information about these positions can be obtained from the research team: Prof. dr. M. A. Hicks (PI), +31 (0) 15 278 7433, m.a.hicks@tudelft.nl; Prof. dr. C. Jommi, +31 (0) 15 278 4173, +39 02 2399 4281, c.jommi@tudelft.nl; and Dr. M. Korff, +31 (0)152782092, m.korff@tudelft.nl.

To apply, please e-mail a detailed CV, proof of English language proficiency, abstract of your MSc thesis (1 page), the names and contact details of 2 referees, along with a letter of application in a single PDF file called CiTG18.63_Lastname.pdf by 31 January 2019 to Recruitment-CiTG@tudelft.nl.