

**3 MSc Research Studentships (1 year)**  
**Stipend: £14,057**

**Tayside Centre for Geotechnical Engineering in Natural Environments (Tay-GENE)** is an exciting joint initiative between Abertay University (AU) and University of Dundee (UoD), funded by the Norman Fraser Design Trust. The Centre aims to link researchers and facilities at the Universities on Tayside to study the negative impacts caused by climate change on managed non-urban land, particularly for sloping ground, and develop novel adaptation strategies.

Tay-GENE is fully-funding a total of three funded MSc studentships (12 months) providing a stipend of £14,057, with tuition fees paid up to £4036 to fully cover the tuition fees for students for Home/EU applicants. Two studentships will be based at Abertay University and one studentship will be based at the University of Dundee.

This advert relates to Project 2, hosted by Abertay University with co-supervision from the University of Dundee.

**Project 2 description: Utilising crushed dolerite columns to stabilise unstable substrates using microbial induced calcite precipitation (MICP): coupling ground improvement and climate mitigation – numerical modelling approach**

This project will focus on numerical modelling in stabilised soils. Stabilising unstable substrate has been one of the most important concerns for geotechnical engineering and microbially induced calcite precipitation (MICP) has proved to be one of the most effective techniques in ground improvement. Crushed dolerite columns will be constructed in unstable substrates in laboratory to provide a source of calcium required for MICP and also act as reinforcement. Specific aims include (i) developing a numerical model to predict the homogenised geo-mechanical properties of substrates between the columns using laboratory results generated in **Project 1** for greater confidence in future design in larger scale projects; (ii) developing a numerical model to predict the homogenised permeability of the substrate subjected to the stabilisation using MICP technique; and (iii) developing a numerical model to predict the overall time-dependent bearing capacity and liquefaction resistance of the substrate subjected to cyclic loading. The developed model will be able to predict large scale soil mechanical and hydraulic behaviour after stabilisation using MICP technique.

**Supervisory team:**

Dr Cornelia Doerich-Stavridis (AU); Dr Ehsan Jorat (AU); Dr Jonathan Knappett (UoD), Dr Anthony Leung (UoD); Dr Glyn Bengough (UoD);.

**Entry requirements:**

Candidates must have, or expect to obtain, a first class or upper second-class honours degree in a relevant discipline (Civil Engineering/ Geotechnical Engineering/ Mathematics). Experience of modelling would be advantageous.

For applicants who are non-native speakers of English, the University requires IELTS of 6.5 (with no band less than 6.0 in the written component and no less than 5.5 in any other component) or an equivalent qualification accepted by the UKVI.

The Studentships is available to start in September 2016 at the earliest or any time up to a January 2017 start for a period up to 1 year.

**How to apply:**

To apply on-line please visit: [https://www.hirewire.co.uk/HE/1061263/THW\\_JobBoard.aspx](https://www.hirewire.co.uk/HE/1061263/THW_JobBoard.aspx)

*The Abertay University is committed to equal opportunities and welcomes applications from all sections of the community.*

**The closing date for submissions is 25<sup>th</sup> August 2016. Submissions after this date will not be considered.**