Shaking the Foundations of Geo-engineering Education

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Table of Contents

Preface
Organisation

Keynote Lectures
What should geotechnical professionals be able to do?
J. Atkinson

Engineering education: A tale of two paradigms
R.M. Felder

Quandary in geomaterial characterization: New versus the old
P.W. Mayne

Using questioning to enhance student engagement
S.J. Ressler

Equilibrium, strength, strain, dilation and superposition
B. Simpson

What topics should be taught in geo-engineering courses?
Key skill sets for use in geotechnics – a contractor’s view
M.J. Baldwin

Will this be on the final exam? Learning objectives for an introductory geotechnical engineering course
G.L. Fiegel

Geotechnical-structural integration in US foundation engineering curricula
W.A. Kitch & D.P. Coduto

Geotechnical engineering education – removing the barriers
D. Muir Wood

Geo-engineering: A co-production of applied earth sciences and civil engineering – 2nd phase
D.J.M. Ngan-Tillard, J. Dijkstra, W. Broere & T. Heimovaara

Rethinking aspects of theory and tradition in soil mechanics teaching
L.D. Wesley

The use of case histories in geo-engineering education
The use of case histories to encourage reflection by civil engineering design students
K.G. Gatta

Teaching the importance of engineering geology using case histories
R. Jimenez & S. Senent

Use of case studies in geotechnical courses: Learning outcomes and suitable cases
T.L.L. Orr & M. Pantazidou

Laboratory work in geo-engineering
The use of online resources to support laboratory classes in soil mechanics
D.W. Airey, P. Cafe & H. Drury

IX
XI
3
9
15
27
35
47
53
61
69
75
83
93
99
105
113
Soil mechanics laboratory classes as an integral part of the learning process
W. Hachich

Interactive learning modules in geotechnical engineering
M.B. Jaksa

Reinventing geotechnical engineering laboratory classes

Activities to enhance students’ understanding of pore water pressure, seepage and total head
D.F.T. Nash

Fieldwork work in geo-engineering
The BMG ignimbrite quarry: Case study of an undergraduate field exercise in engineering geology
S.G. Fityus & J.H. Gibson

The use of field visits in graduate geotechnical teaching
R. Jimenes & W. Martin-Rosales

TU Delft Spain fieldwork and other outdoor activities
D.J.M. Ngan-Tillard, L.A. van Paassen, P.M. Maurenbrecher, A. Concha & M. Gonzalez

Computing and technology in geo-engineering
Dunmore Bridge case study: An introduction to geotechnical engineering via finite element analysis
A.J. Abbo, S.G. Fityus & S. Mackenzie

Integrating a major Excel exercise in an introductory soil mechanics course
D.W. Airey, N. Balaam, P. Cafe & A. El-Zein

The use of electronic voting systems to enhance deep learning
D. Barreto

Implementation of the use of computing and software in undergraduate Soil Mechanics courses
M. Pinho-Lopes

Learning issues related to basic concepts in geotechnics: A teacher’s perspective
F. Szavits-Nossan

Geo-engineering research and teaching experiences
The LARAM School: teaching, “Landslide Risk Assessment and Mitigation” to PhD students
L. Cascini, G. Sorbini, M. Calvello & S. Cuomo

Challenges in teaching engineering to the next generation: Some data from a geo-engineering perspective
S.G. Fityus

Lecturers’ perceptions of students’ learning needs in geo-engineering in Spain
R. Monroy, E.J. Torrijio-Echarri & F. Hernández-Pina

A tour through education sites for an engineering instructor: Major stops and impressions
M. Pontazidou & J.D. Frost

Intellectual synergy in the education of geo-engineering
R. Ray, P. Scharle & R. Szepeshazi

Student-centred learning in geo-engineering
Teaching geotechnical engineering with theory-practice integration: Group project approach
C.-M. Chan

Use of project based learning to teach geotechnical design skills to civil engineering students
K.G. Gavin

Experiences from revising a course to promote significant learning
T. Kunberger

Promoting active learning in geotechnical engineering
C.F. Leung

Sport and soil mechanics – analogies to aid student learning
B.A. McCabe & M.B. Jaksa

Integrating professional geotechnical practice into the curriculum
D.F.T. Nash

Context, rigour and enjoyment in geotechnical education
D.T. Phillips

Some reflections on the use of a cooperative learning model in Soil Mechanics courses
M. Pinho-Lopes

Learning through doing: Using geotechnical research to prepare undergraduates for graduate school
N.W. Trombetta, G.L. Fiegel & H.B. Mason

Author index
Preface

The higher education sector worldwide is undergoing enormous change. Since about 1960, universities have moved from elite to mass education. For example, in the UK in 1979, just over one in ten young people entered higher education and by 2009, this had risen to over one in three. In many of the established higher education sectors, the proportion of international students has also increased significantly. In Australia (which in 2006, had the highest proportion of international students in its universities of any OECD country), the fraction rose from 8.5% in 1996 to 26.5% in 2007. Other substantial changes include increasing globalisation of tertiary education; diminishing public funding; greater government regulation; increasing student-staff ratios; greater student diversity; changing student expectations and demands; increased use of technology in teaching and learning; growing difficulty in attracting and retaining high quality academic staff; ageing academic workforce; and academic staff under greater pressure to perform in research. Furthermore, several educators predict that the nature of universities may be vastly different in the future, with online education and distance learning coming to the fore.

With this backdrop, it is particularly timely for the geo-engineering education sector to re-examine its position. Shaking the Foundations of Geo-engineering Education (SFGE 2012) is an international conference hosted at the National University of Ireland, Galway, Ireland, which seeks to build upon the success of two previous conferences held in Romania – the First International Conference on Geotechnical Engineering Education and Training held in Sinaia in 2000, followed by the First International Conference on Education and Training in Geo-Engineering Sciences: Soil Mechanics and Geotechnical Engineering, Engineering Geology, Rock Mechanics, held in Constantza in 2008. SFGE 2012 is a major initiative of the ISSMGE’s Technical Committee 306 on Geo-engineering Education. An important objective of the present conference, over those that preceded it, is the active engagement with the significant body of learning and teaching research that has been accumulating for many years in the fields of higher and engineering education.

The organizers of SFGE 2012 aspire to deliver a landmark international symposium that will leave an enduring legacy of valuable ideas and innovations to the global geo-engineering education community. The five invited keynote lectures have been chosen to prompt delegates to debate geo-engineering education issues in the context of best practice in engineering education. A further 36 contributed papers offer worthy experiences and insights on the following topics in geo-engineering: what topics should be taught; teaching through case histories; the role of laboratory work and fieldwork; computing and technology; research on engineering education, teaching experiences and student-centred learning. Each of the papers has been peer-reviewed by at least two reviewers. The conference organizers are grateful for the assistance of the reviewers in arriving at this high quality set of papers.

The SFGE organizers are confident that the conference will be memorable, enjoyable and a technically-valuable experience for all in attendance and that the proceedings will be a source of inspiration for effective and engaging geo-engineering education worldwide for years to come.

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## Author index

<table>
<thead>
<tr>
<th>Author</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abo, A.J.</td>
<td>171</td>
</tr>
<tr>
<td>Airye, D.W.</td>
<td>113, 137, 177</td>
</tr>
<tr>
<td>Adkins, J.</td>
<td>3</td>
</tr>
<tr>
<td>Balam, N.</td>
<td>177</td>
</tr>
<tr>
<td>Baldwin, M.J.</td>
<td>47</td>
</tr>
<tr>
<td>Barreto, D.</td>
<td>183</td>
</tr>
<tr>
<td>Brocke, W.</td>
<td>79</td>
</tr>
<tr>
<td>Cafe, P.</td>
<td>113, 177</td>
</tr>
<tr>
<td>Calvello, M.</td>
<td>211</td>
</tr>
<tr>
<td>Cascani, L.</td>
<td>211</td>
</tr>
<tr>
<td>Chan, C.-M.</td>
<td>251</td>
</tr>
<tr>
<td>Coduto, D.P.</td>
<td>61</td>
</tr>
<tr>
<td>Coenens, A.</td>
<td>163</td>
</tr>
<tr>
<td>Csomo, S.</td>
<td>211</td>
</tr>
<tr>
<td>Dijkstra, J.</td>
<td>75</td>
</tr>
<tr>
<td>Drury, H.</td>
<td>113</td>
</tr>
<tr>
<td>El-Zein, A.</td>
<td>177</td>
</tr>
<tr>
<td>Felder, R.M.</td>
<td>9</td>
</tr>
<tr>
<td>Fengel, G.L.</td>
<td>53, 309</td>
</tr>
<tr>
<td>Fiyu, S.G.</td>
<td>151, 171, 219</td>
</tr>
<tr>
<td>Frost, J.D.</td>
<td>231</td>
</tr>
<tr>
<td>Gavia, K.G.</td>
<td>93, 257</td>
</tr>
<tr>
<td>Gibbon, J.H.</td>
<td>151</td>
</tr>
<tr>
<td>Gonzales, M.</td>
<td>163</td>
</tr>
<tr>
<td>Hachich, W.</td>
<td>121</td>
</tr>
<tr>
<td>Heimovaara, T.</td>
<td>75</td>
</tr>
<tr>
<td>Hernández-Pina, P.</td>
<td>225</td>
</tr>
<tr>
<td>Jaksa, M.B.</td>
<td>131, 137, 281</td>
</tr>
<tr>
<td>Jimenez, R.</td>
<td>99, 157</td>
</tr>
<tr>
<td>Kite, W.A.</td>
<td>61</td>
</tr>
<tr>
<td>Kodikara, J.K.</td>
<td>137</td>
</tr>
<tr>
<td>Kanberger, T.</td>
<td>265</td>
</tr>
<tr>
<td>Leung, C.F.</td>
<td>273</td>
</tr>
<tr>
<td>Mackenzie, S.</td>
<td>171</td>
</tr>
<tr>
<td>Martin-Rosses, W.</td>
<td>157</td>
</tr>
<tr>
<td>Mason, H.B.</td>
<td>269</td>
</tr>
<tr>
<td>Maunderbocher, P.M.</td>
<td>163</td>
</tr>
<tr>
<td>Mayne, F.W.</td>
<td>15</td>
</tr>
<tr>
<td>McCabe, B.A.</td>
<td>281</td>
</tr>
<tr>
<td>Monroy, R.</td>
<td>225</td>
</tr>
<tr>
<td>Mair Wood, D.</td>
<td>69</td>
</tr>
<tr>
<td>Nash, D.F.T.</td>
<td>143, 287</td>
</tr>
<tr>
<td>Ngan-Tifard, D.J.M.</td>
<td>75, 163</td>
</tr>
<tr>
<td>Crr, T.L.L.</td>
<td>105</td>
</tr>
<tr>
<td>Pantazidou, M.</td>
<td>105, 231</td>
</tr>
<tr>
<td>Phillips, D.T.</td>
<td>295</td>
</tr>
<tr>
<td>Pinheiro-Lopes, M.</td>
<td>193, 301</td>
</tr>
<tr>
<td>Ray, R.</td>
<td>243</td>
</tr>
<tr>
<td>Ressler, S.J.</td>
<td>27</td>
</tr>
<tr>
<td>Schaefer, P.</td>
<td>243</td>
</tr>
<tr>
<td>Senent, S.</td>
<td>99</td>
</tr>
<tr>
<td>Shim, M.A.</td>
<td>137</td>
</tr>
<tr>
<td>Simpson, B.</td>
<td>35</td>
</tr>
<tr>
<td>Sorin, G.</td>
<td>211</td>
</tr>
<tr>
<td>Szvives-Nossan, V.</td>
<td>201</td>
</tr>
<tr>
<td>Szepeshazi, R.</td>
<td>243</td>
</tr>
<tr>
<td>Torrijas-Echarri, F.J.</td>
<td>225</td>
</tr>
<tr>
<td>Trombetta, N.W.</td>
<td>369</td>
</tr>
<tr>
<td>van Paassen, L.A.</td>
<td>163</td>
</tr>
<tr>
<td>Wesley, I.D.</td>
<td>83</td>
</tr>
<tr>
<td>Yuen, S.T.S.</td>
<td>137</td>
</tr>
</tbody>
</table>