8TH INTER-UNIVERSITY INVITATIONAL CIVIL ENGINEERING COMPETITION

Ultimate challenge for the tomorrow leaders of the civil engineering and construction industry

6-10 July 2014

Clayton Campus, Monash University, Melbourne

Sponsors: Wood Solutions™ aurecon

eng.monash.edu.au/iuicec14
Organised by: Department of Civil Engineering
Faculty of Engineering, Clayton
Monash University

Organising Committee: Associate Professor Bill Wong (Chair)
Dr Amin Heidarpour (Co-Chair)
Dr Colin Caprani (Co-Chair)
Mr Long Goh
Postgraduate representative
Representatives from industry
Summary

The Department of Civil Engineering (DCE) at Monash University will host the 8th Inter-University Invitational Civil Engineering Competition in July 2014. This competition is held biennially and the hosting university is chosen and agreed by the competing universities during the previous competition. It has been decided by the DCE that there will be 20 universities to be invited to take part in this competition in 2014. There will be one team from each of the 20 universities, predominantly technological based, from around the world participating in this competition. Each team consists of 4 members including one team leader, usually an academic, and three students. As a tradition, all teams will be provided with accommodation and food during a period of 5 days. A finale awards night will be held on the last day of competition, followed by a day tour the following day.
Introduction to IUICEC

1. Description of the competition

1.1 History

The biennial Inter-University Invitational Civil Engineering Competition (IUICEC) started at Tsinghua University in Beijing, China in 2000 for the celebration of the Millennium. Since then, the scale of the competition has grown and many more universities, including Monash joining the competition in 2010, have been invited to join the competition. The following table shows the history of the competition. The list of participating universities in 2012 is shown in Appendix 1.

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of participating universities</th>
<th>Host</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>3</td>
<td>Tsinghua University, China</td>
</tr>
<tr>
<td>2002</td>
<td>3</td>
<td>The University of Hong Kong, Hong Kong</td>
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<tr>
<td>2004</td>
<td>7</td>
<td>University of Macau, Macau</td>
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<tr>
<td>2006</td>
<td>8</td>
<td>Hanyang University, South Korea</td>
</tr>
<tr>
<td>2008</td>
<td>15</td>
<td>Tongji University, China</td>
</tr>
<tr>
<td>2010</td>
<td>11</td>
<td>National University of Singapore, Singapore</td>
</tr>
<tr>
<td>2012</td>
<td>13</td>
<td>Kuala Lumpur Infrastructure University College (KLIUC), Malaysia</td>
</tr>
</tbody>
</table>

The 5th competition held at Tongji University in Shanghai had the most universities participating, including one team from each of US and Europe. Monash joined the 6th competition, which was held in Singapore in 2010, and was fortunate enough to take home the trophy. This will be the first time for the competition to be hosted outside of Asia.

At the start of the competition series, some universities sent more than one team to participate. From 2010, each participating university was allowed to send only one team for the competition, usually consisting of 4 team members, one academic leader and 3 students, one of them is female.

In all seven competitions to date, the rules were based on building a structural model made of balsa wood and tested under various types of loading. Each team was required to submit a design report to be graded and ranked by a panel consisting of the team leaders. The criteria for judging the winner were based on the design report, presentation of the design on the day of competition and the structural performance during the loading test. All teams needed to construct the structures within a timeframe of 3 days during the competition period. The finale was a presentation dinner with cultural entertainment pertaining to the host country, followed by a tour the following day.

1.2 Competition hosted by Monash in 2014

The competition to date has been focused on structural design, with most elements in the competition belonging to the discipline of structural engineering. It is the intention of the
organising committee that the focus of the competition be expanded to include the following new elements:

i) Water, structure and geotechnical engineering disciplines to make it a truly civil engineering competition. It may also include some transport requirements with logistics and management components.

ii) A research component in the report for submission to judging panel.

iii) Universities from all continents be included with a total of about 20 universities.

iv) Industry participation.

1.3 Marketing

All participating universities will join the competition by invitation only from the host university. For the 2014 competition, Monash will invite all past participants. In addition, a number of local universities, mostly from Victoria in Australia, will also be invited. This would make up a total of about 20 universities.

The competition will be publicised through various channels including learned societies, email database, and Monash newsletters. The marketing team in the Faculty of Engineering will get involved in publicising as well as soliciting sponsorships. A summary report of the publication will be sent to Monash Memo and other media outlets for publication.

1.4 Operation

An organising committee consisting of mainly staff and postgraduate students in the Department of Civil Engineering will handle the operation of the competition.

The tentative date of competition is 7th - 10th July 2014, when students in Australia have mid-year semester break and students from most countries in the northern hemisphere start to have their summer vacation. The venue for conducting the event, including construction of the models and presentations by students, will be at one of the engineering halls in Building 60, Clayton campus.

It is expected that there will be about 80 guests, including both students and team leaders. Accommodation will be provided for all guests free of charge for 4 nights from 6th July to 10th July. Accommodation providers around the Clayton campus will be suitable for the guests as the venue for competition is within walking distance. Extended stay can be arranged at the guests’ own cost.

1.5 Timeline

- August 2013 – universities invited
- November 2013 – rules sent for comments
- December 2013 – final publication of rules
- March 2014 – team details requested
- May 2014 – finalisation of competition program
- July 2014 – competition underway
1.6 Competition day schedule

<table>
<thead>
<tr>
<th>9 July 2014</th>
<th>Event</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 – 12:00</td>
<td>Project design presentation</td>
<td>Lecture Theatre C1</td>
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<tr>
<td>12:45 – 15:00</td>
<td>Tests on structures</td>
<td>Engineering Hall</td>
</tr>
<tr>
<td>15:00 – 16:30</td>
<td>Result preparation</td>
<td>Engineering Hall</td>
</tr>
<tr>
<td>16:30 – 17:00</td>
<td>Closing ceremony</td>
<td>Lecture Theatre C1</td>
</tr>
<tr>
<td>19:00 – 22:00</td>
<td>Finale Dinner &amp; Award night</td>
<td>TBA</td>
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</tbody>
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Appendix 1. List of participating universities in 2012

Hanyang University, South Korea
Kuala Lumpur Infrastructure University College, Malaysia
Monash University, Australia
National University of Singapore, Singapore
Shanghai Jiao Tong University, China
The University of Hong Kong, Hong Kong
Tongji University, China
Tsinghua University, China
Universiti Teknologi Malaysia, Malaysia
Universiti Teknologi Mara, Malaysia
Universiti Teknologi Petronas, Malaysia
Universiti Tenaga Nasional, Malaysia
University of Macau, Macau