Innovation in Civil Engineering education programs

The original call for participation in the special track:

The issue of development and sustainability is foremost on the agenda of many nations. As educators, we should examine how this issue can best be addressed in our programs that train future civil engineering professionals.

Singapore places great emphasis on the education and training of its people in response to new challenges. The Singapore edition of EACEF will be organizing a special session on ‘Incorporating sustainability in civil engineering education’ - comprising invited talks, position papers by delegates and a forum discussion among educators, practitioners and industry - to share views and experiences on innovating changes to address sustainability in civil engineering practice and education. We would like to encourage you to participate by submitting a paper for this session. More details of this session will be announced later.

Sustainability is the most pressing issue facing human society today. Awareness of this issue and progress towards its attainment is only meaningful in the context of a globalized and more interconnected world. As educators, we also need to be mindful of the challenges and opportunities that a globalized and more interconnected world present to us even as we modify our programs to include the issue of sustainability. If we fail to take this wider context into account, we may have missed the bigger picture and addressed only the symptoms.

Focus of session

- 4-year undergraduate programs in Civil Engineering
- Changes in program design, structure and delivery to address local and global concerns on development and sustainability;
- Innovations in various aspects of engineering programs - design, structure, delivery, funding – arising from a more globalized and connected world.

Innovation

A change in the product and / or process delivered by a system that brings value to the system’s stakeholders. The change is in response to new opportunities, needs or risks in the system’s environment.

Topics of interest for discussion

1. New requirements in the professional training of civil engineers
2. Systems of program certification and accreditation
3. New criteria for evaluating civil engineering programs
4. Change from input-based to outcome-based criteria
5. Increased importance of the educational process besides goals and objectives
6. Change in demographics of student population
7. Increase in diversity of pathways for students
8. Changes resulting from globalization and the integration of service economies
9. New ways of funding programs
10. New business models in delivering civil engineering training & education
11. New ways of delivering training and courses
12. Increasing complexity of engineered products
13. Pervasive use of ICT in the classroom
14. Convergence of internet, information and communication technologies
15. Expanding definitions of the classroom
16. New standards for civil engineering educators
17. Opportunities for closer integration and collaboration with other disciplines
18. Leadership of change management programs

Suggested outline
1. Description of program
   a. Formal name of program
   b. Goals and objectives
   c. Program structure, and key pathways / options for students enabled by the program
   d. Student numbers (past 5 years)
   e. Program funding – source and amount of funds (past 5 years)
2. Key trends that will impact program
3. Threats and opportunities arising from trends
4. Noteworthy institutional and/or individual responses

Format of participation

Abstract of talk (500 words)
- Cover items (2)-(4) [key trends, threats / opportunities and responses] of outline suggested above.

A 20 minute presentation (in lieu of a full paper)
- Include item (1) [program description], and more details of items (2)-(4).