The International Journal of
ENGINEERING
EDUCATION

CALL FOR PAPERS

SPECIAL ISSUE ON

CURRENT TRENDS IN K-12 ENGINEERING EDUCATION

Guest Editors
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Contributions are invited for a special issue of the International Journal of Engineering Education (IJEE) on Current Trends in K-12 Engineering Education.

Engineering education has been regarded as a crucial output element in STEM (Science, Technology, Engineering, and Mathematics) education since engineering education prepares students to create practical products by using scientific principles, technological tools, and mathematical computing (three input elements). Students engaging in engineering design process can develop their skills in systematic thinking, problem solving, and team-based communication. In recent years, engineering educators have attempted to bring those identified learning benefits into K-12 classrooms. However, integrating engineering concepts and skills into existing K-12 science, mathematics, and technology curricula may face unexpected obstacles. The key theme in this special issue is to explore the following research questions with a focus on pedagogical and learning issues in K-12 (pre-college) engineering education:

- What are students' and teachers' conceptions about epistemology of engineering?
- How does curriculum design address engineering concepts and skills?
- What are effective instructional strategies to impart engineering knowledge?
- How do school educators integrate engineering education into existing K-12 curricula?
- What are possible formal/informal learning opportunities used to facilitate students' engineering learning?
- What types of formal/informal activities can be employed to promote engineering professions?
- How do school teachers acquire their engineering knowledge?
- What types of emerging technologies are useful to facilitate students' engineering learning?
- How can students' learning outcomes be assessed while receiving engineering instruction?
- How do underrepresented groups obtain engineering knowledge?

Example topics in the issue may include, but are not limited to:

- Students' and teachers' perceptions of engineers and/or engineering
- Curriculum design in engineering education
- Instructional strategies for imparting engineering knowledge
- Integration of engineering education into K-12 curricula
- Informal learning activities (e.g., museum education) for learning engineering topics
- Informal activities (e.g., summer camp) for promoting engineering professions
- School teachers' engineering professional training
- School teachers' attitudes toward engineering instruction
- Pre-service engineering training in teacher-preparation programs
- Computer applications in engineering education
- Assessment tools for measuring children's engineering knowledge
- Assessing engineering learning performance of underrepresented groups (e.g., gender or ethnicity)

Important Deadlines

Extended abstract (around 2 pages)	May 1, 2015
Notification of Reviewers' feedback	June 15, 2015
Submission of manuscripts	September 30, 2015
Notification of Reviewers' feedback	December 15, 2015
Submission of final manuscripts	February 15, 2016

Submissions are to be sent by e-mail in MSWord to Prof. Wei-Fan Chen at weifan@psu.edu and Prof. Pao-Nan Chou at pnchou@gm2.nutn.edu.tw

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