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CALL FOR PAPERS

SPECIAL ISSUE ON

Engineering Education: Beyond Technical Skills

Guest Editors

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Successful engineering professionals depend on basic engineering knowledge, skills and abilities, such as: a profound knowledge of mathematics, physics and technology, in order to identify, model and solve engineering problems; the application of systematic working methods to design systems, components and processes, considering economic, environmental, social and human dimensions, together with the usual technical related issues; and an overall understanding of the advanced technological resources from their specific fields of dedication.

However, these basic engineering skills are not the only key to professional development, particularly as engineering problems are everyday more and more complex and multifaceted, hence requiring the implementation of larger multidisciplinary teams, in many cases working in an international context and in a continuously evolving environment. Therefore other outcomes or competencies (sometimes called “soft” skills, although professional or transversal is most adequate), are also necessary for our students, as most universities are already aware.

Among these competencies, some play a very special role, including: the ability to work in multidisciplinary teams, the capability of efficient (oral and written) communication, the compromise with life-long learning, creative thinking, the acquisition of ethical principles and the capability of applying them in a changing world.

The acquisition of such professional competencies has traditionally been linked to project-based learning activities and to the involvement of students in their final degree theses or projects or even considered a minor subject linked to students' first job and initial years in the industrial world. Nevertheless, in a competitive industry and with the increase of engineering universities and degrees, universities providing their students both with basic engineering knowledge and with professional competencies are nowadays essential if teaching excellence is pursued.

Integrating professional competencies into the curriculum of our students, in a more controlled and adequate way, is a complex task with some uncertainties not yet solved, mainly linked to pedagogical difficulties when facing how to teach these more subjective matters, to the need of finding a balance between teaching basic and professional skills, to the necessity of using alternative assessment procedures, among others.

Therefore, it is important to methodically analyze the difficulties and challenges linked to the progressive incorporation of professional skills into engineering curricula, from the detection of teaching needs, to the final assessment of the actuations tackled, so as to promote their advantages, reinforce some lacking aspects and limit the possible negative effects. The Special Issue on "Engineering Education: Beyond Technical Skills" aims to share teaching-learning experiences and to focus in depth on aspects such as:

- Methodologies for promoting professional skills and their incorporation into the curriculum.
- Integral actuations linked to complete program implementation.
- Case studies linked to the promotion of specific professional skills.
- Assessment of generic professional competencies.
- Comparative performance of graduates from programs with/without focus on these outcomes.
- Future directions and proposals for improvement.

Submissions are to be sent by e-mail in MSWord (.doc) to any of the guest-editors:

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Important Deadlines

Submission of extended abstracts (around two pages):	March 31, 2013
Notification of reviewers' feedback:	April 15, 2013
Submission of manuscript:	July 31, 2013
Notification of reviewers' feedback:	September 15, 2013
Submission of final manuscript:	November 30, 2013

Manuscripts must be written in English and limited to 12 one-sided, one-column, single-spaced pages. Manuscripts should include keywords, complete affiliation of the authors and a short biography, and the citing and listing of references should be in the IJEE style. Figures and illustrations should be suitable for non-color printing.

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