

## GUEST EDITORIAL PREFACE

# Special Issue on Papers from the International Engineering and Technology Education Conference (IETEC'13)

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The interest in engineering and technology education spans a range of topics from the effectiveness of pedagogy and curricula to the practical tools to help improve the general educational environment. This special issue of the *International Journal of Quality Assurance in Engineering and Technology Education* (IJQAETE) presents a composite of papers that was selected after a rigorous review of the conference papers presented and published at the *International Engineering and Technology Education Conference (IETEC'13)* held in Ho Chi Minh City, Vietnam. This issue brings together six papers from a number of international contributors. The papers presented in this edition span a range of topics in illustrating the richness of the field of engineering and technology education.

The first paper by Symes et al. examined the relationship between interpersonal variables and student perceptions on the validity of peer

assessment. In order to understand the relationship between social interaction and its effects on peer assessment, four interpersonal variables were identified in this study: psychological safety, value diversity, interdependence, and trust. Preliminary findings from this study and evidence from other studies support the view that interpersonal variables have the potential to affect peer assessment and influence the learning outcomes.

Next, Pham et al. presented a paper that discusses the application of a static method in an online intelligent tutoring system. The authors highlighted that programming is time consuming and can be acquired with substantial practice. The paper elaborated on a static method which was applied to build an online intelligent tutoring system that can assist students to check their solutions. This feature is useful for students to self-practice and improve their learning. Besides the ability to verify the correctness of

the program, the proposed system can identify bugs automatically, thanks to group testing and slicing spectrum-based fault localization.

Thambiratnam's paper argued that knowledge of structural dynamics is necessary to address three major issues with structural engineering in the new millennium and their consequences. Structural dynamics research has generated considerable amount of new knowledge to address these issue, but this is not readily available to practicing engineers as very little or none of it enters the class rooms. This paper argues for the need to include structural dynamics and the new research knowledge into the syllabus of all civil engineering courses, especially those with a major in structural engineering. These will empower engineering students to address the current engineering issues facing the community and increase value to their engineering education as well as enable future structural engineers to design and maintain safe and efficient structures.

The paper by Roselainy and her co-authors discussed the results of an action research to improve teaching practice which applied the philosophy of Knowledge – Experiential – Self-regulated (KES). The study proposed a new model which was a modification to a previously developed framework by Roselainy et al. (2012a) and included strategies to support students' awareness of their Self-Regulated Learning (SRL). There were three main objectives of the research; (i) to enhance students' mathematical competencies; (ii) to support self-regulated learning; and (iii) to improve the teaching practice of Engineering Mathematics 3 (i.e. Advanced Calculus). The primary focus of the paper is to report the implementation of the research as well as the strategies that were used in the classroom. The paper proposed that teachers should design an appropriate learning environment and apply suitable strategies in encouraging and supporting students to embrace and take charge of their own learning.

Next, Amanullah et al. presented a Project Oriented Design Based Learning (PODBL) model. PODB L model drives the learning through a design based project and employs a blended learning environment to address the challenges faced in distance engineering education. The paper outlines the technology integration for the distance students through real engineering design activities while driven by a project that has a defined deliverable. It discusses how the model is applied across all four years of engineering and across the four disciplines of civil, mechanical, electrical and mechatronics taught in the school of engineering at Deakin University.

Finally, Giang's paper highlighted the modeling theory by developing an online three-stage training environment of technical skills. This paper describes the implementation of the online environment and evaluates the effectiveness of the online method. It focuses on the teaching models of technical skills and enlarges the online learning network. A survey was used in comparing the online instruction with face-to-face teaching by using the following criteria: learning content's presentation; students' attitude; students' completion of the skills; the effectiveness of online learning; the organisational capability of online courses and the requirement of IT skills for online teachers. The results prove that effective teaching strategies can encourage the learners to practise technical skills in online courses.

I sincerely hope that the papers included in this edition will provide a springboard for inspiration to encourage more researchers to work in the engineering and technology subjects as well as to enhance the quality of the engineering and technology education.

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*Marlia Puteh is an Associate Professor at the Language Academy, Universiti Teknologi Malaysia (UTM). She joined UTM, the Malaysian premier engineering university since 2001. She has seized the opportunity of her English language background and multidisciplinary focus to publish extensively in engineering education, e-Learning and English language studies in the higher education sector. Marlia has developed a keen interest in engineering education research and her work extends in the areas of quality assurance and accreditation in the higher education sector. She was a visiting professor at the UNESCO Chair for Problem Based Learning in Engineering Education in Aalborg University, Denmark where she expanded her research inquiry by benchmarking the European accreditation system with the Malaysian practice. She has published widely and her publications include refereed journals, conference papers, book chapters and academic books, both in the domains of engineering education and technology in language learning.*