

Research in Engineering Education Symposium

Book of Proceedings

Madrid

Spain

October 2011



POLITÉCNICA

2011 Research in Engineering Education Symposium

Program and Proceedings

1) October 4-7, 2011

Madrid, Spain

All papers accepted for publication in the Proceedings of the Research in Engineering Education Symposium were submitted as full papers and have been **triple blind peer reviewed by at least two members of an expert editorial panel**. Based on these reviews, authors were asked to revise their papers before a final decision to accept and publish the paper was made. This process of reviewing is in accord with the REES Review Criteria adopted in 2010.

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Welcome message

Research in Engineering Education Symposium 2011

It is my pleasure to warmly welcome you to the 2011 Research in Engineering Education Symposium being held in Madrid, Spain, October 4-7, 2011. The main theme of the conference is Engineering Education Research and the purpose of REES is to build a global community of researchers in engineering education. As in previous years, we are seeking contributions that represent high-quality research activity across a diverse range of research traditions and will contribute to engaged conversations during the conference. Participants should come ready to share, discuss, debate, encourage and leave with at least one new research partner.

The conference has been organized by an international Planning Committee of colleagues in the field of engineering education research, supported and hosted by the Universidad Politécnica de Madrid (UPM). Sponsors include the Vicerrectorado de Ordenación Académica y Planificación Estratégica UPM (gold sponsor), EUIT de Telecomunicación UPM (bronze sponsor), EU de Informática UPM (bronze sponsor), ETS de Ingenieros Aeronáuticos UPM (bronze sponsor), EUIT de Aeronáutica UPM (bronze sponsor), Madrid Convention Bureau (bronze sponsor) and the Journal of Engineering Education (bronze sponsor).

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Session 2 – Wednesday afternoon

Turn A: Engineering Education Research – Chair:Llewellyn Mann

14:30 – 15:00	<p>Paper number 68 “Strategic pathways to engineering education research: a top-down case study”</p> <p><i>Presenter: Maizam Alias</i></p>
15:00 – 15:30	<p>Paper number 79 “Hidden barriers to academic staff engaging in Engineering Education Research”</p> <p><i>Presenter: Llewellyn Mann</i></p>
15:30 – 16:00	<p>Paper number 64 “Analysis of trends in United States National Science Foundation funding for engineering education: 1990 - present”</p> <p><i>Presenter: Barbara M.Olds</i></p>
16:00 – 16:30	<p>Paper number 144 “A possible resistive electrical circuits learning pathway for engineering students”</p> <p><i>Presenter: Mauricio Duque</i></p>

Turn B: Project-Based Learning – Chair: Milo Koretsky

14:30 – 15:00	<p>Paper number 28 “Evaluating tutor training for online PBL teamwork courses in first year engineering”</p> <p><i>Presenter: Lyn Brodie</i></p>
15:00 – 15:30	<p>Paper number 31 “Measuring the influence of cooperative learning and project based learning on problem solving skill”</p> <p><i>Presenter: Javier Garcia</i></p>

Turn D: Knowledge and leadership – Chair: Luis Manuel Cerda

16:45 – 17:15

Paper number 44

“Building leadership capacity of engineering academics in a leadership vacuum constructed within a participatory group to engage a professional body”

Presenter: Steven Goh

17:15 – 17:45

Paper number 33

“Knowledge management and leadership in the higher education A first approach”

Presenter: Luis Manuel Cerda

17:45 – 18:15

Paper number 70

“Teaching contextual knowledge in engineering education – Theory of Engineering science and the core curriculum at the Technical University of Denmark”

Presenter: Ulrik Jorgensen and Sosser Brodersen

Session 5 – Thursday morning

Turn A: Curricula 2 – Chair: Dawn Williams

11:00 – 11:30	<p>Paper number 159 “Studying interdisciplinary in Engineering degree courses: Conceptual and methodological issues”</p> <p><i>Presenter: Anne-Sophie Godfroy</i></p>
11:30 – 12:00	<p>Paper number 96 “Facilitating intellectual and personal skills developments in engineering programmes”</p> <p><i>Presenter: Gavin Duffy</i></p>
12:00 – 12:30	<p>Paper number 81 “The development of a systematic consultation process to define graduate outcomes for engineering disciplines”</p> <p><i>Presenter: Roger Hadgraft</i></p>
12:30 – 13:00	<p>Paper number 88 “The development of assessment tools using phenomenography”</p> <p><i>Presenter: Craig Titus</i></p>

Turn B: Classroom experiences – Chair: Lyn Brodie

11:00 – 11:30	<p>Paper number 58 “Classroom experiences in the new degree of Materials Engineering at UPM”</p> <p><i>Presenter: Teresa Palacios</i></p>
11:30 – 12:00	<p>Paper number 91 “An architecture for virtual and remote laboratories to support distance learning”</p> <p><i>Presenter: Rubén Heradio</i></p>

Session 6 – Friday morning

Turn A: Assessment 2 – Chair: Erik de Graff

08:30 – 09:00	<p>Paper number 123 “(Re-)Building an assessment paradigm: Individual student learning in tea-based subjects”</p> <p><i>Presenter: Matt Elliot</i></p>
09:00 – 09:30	<p>Paper number 49 “Considerations on the academic success in aeronautical engineering studies in Spain”</p> <p><i>Presenter: Alfredo Sanz</i></p>
09:30 - 10:00	<p>Paper number 179 “Assessing individual performance within group design and group problem-solving learning environments”</p> <p><i>Presenter: Rob Cowdroy</i></p>
10:00 – 10:30	<p>Paper number 104 “Understanding feedback in an authentic, ill-structured project through discourse analysis: Interaction between student and instructor objectives”</p> <p><i>Presenter: Milo Koretsky and Debra Gilbuena</i></p>

Turn B: Tools 2 – Chair: James Pellegrino

08:30 – 09:00	<p>Paper number 119 “Quality of experience of online learning tools”</p> <p><i>Presenter: Lyn Brodie</i></p>
09:00 – 09:30	<p>Paper number 34 “Concept inventories as aids for instruction: a validity framework with examples of application”</p> <p><i>Presenter: James Pellegrino</i></p>