

29th Australasian Association for Engineering Education **Conference 2018**



9-12 December 2018

THE UNIVERSITY OF WAIKATO + WINTEC, HAMILTON



PRELIMINARY PROGRAMME

As at 16 November 2018

Sunday 9 December 2018	
4.30pm	Registration Opens <i>Venue: Wintec, Rotokauri Campus</i>
5.00pm – 7.30pm	Pōwhiri and Welcome Function <i>Venue: Wintec, Rotokauri Campus</i>

All conference sessions from Monday 10 to Wednesday 12 December will take place at University of Waikato, Hamilton.

Monday 10 December 2018	
8.00am	Registration Opens <i>Venue: University of Waikato, Hamilton</i>
8.30am – 10.30am	Conference Opening and Plenary Session 1 <i>Venue: University of Waikato, Hamilton</i> <i>Chair:</i>
8.30am – 8.50am	Welcome to Country - Mihi Whakatau
8.50am – 8.55am	Opening by Vice Chancellor (University of Waikato)
8.55am – 9.00am	Chief Executive (Wintec)
9.00am – 9.05am	Welcome by Conference Chair
9.10am – 10.05am	Angus Macfarlane
10.05am – 10.15am	TBC
10.15am – 10.25am	Engineering Education, Why, Who and How Mark Symes
10.25am – 10.30am	Group Photo
10.30am – 11.00am	Morning Tea and Exhibition <i>Venue:</i>

Disclaimer: The organisers reserve the right to alter or delete items from the conference programme.

11.00am – 12.30pm	Parallel Sessions			
	Parallel Session 1A Venue: Chair:	Parallel Session 1B Venue: Chair:	Parallel Session 1C Venue: Chair:	Workshop 1D Venue: Chair:
11.00am – 11.10am	Faculty attitudes towards integrated engineering as a concept and a curriculum Tom Goldfinch, J Vulic, K Willey, G Miao, R Fiford, A Hadigheh	Connection to country - Building a connection to Indigenous knowledges in engineering education Jennifer Turner, A Burt, L Mann	Enhancing innovation and entrepreneurial competences of engineering students through a systematic cross-industry innovation learning course Pavel Livotov	11.00am – 12.30pm Using practice architectures theory to support writing practices in the engineering curriculum Rosalie Goldsmith, Keith Willey
11.10am – 11.20am	Embedding a Management System for Engineering Education (MaSEE) into curricula Bernadette Foley, T Gill, E Palmer, S Eglinton-Warner, B Senadji, E Martinez-Marroquin	A novel approach to professional empowerment of engineers P Cebon, Juliana Kaya Prpic, A Ooi	A new higher education curriculum model to meet the needs of the Civil Construction industry A Irvine, J Irvine, Andrew Rose	
11.20am – 11.30am	Reflections on a large curriculum change project Roger Hadgraft, B Francis, J Lawson, R Jarman	Cross-cultural construction engineering with aboriginal communities Cat Kutay, Burak Gunay, C Tobin	Aligning student projects and curriculum design in mechanical engineering design courses to meet the needs of local industries Lim Jen Nee Jones, M Ismadi, B Thong Tan, S Wordley	
11.30am – 11.40am	ALoHA! Aligning learning outcomes and assessment. First stages of a constructive alignment and curriculum mapping project at a unit and faculty level Veronica Halupka, T Nguyen, M Woo, J Lamborn	How we tell our engineering stories Cat Kutay, Elysebeth Leigh	Diversity games that highlight importance of diversity and collaboration for engineering and project management students Ehassan Sakhaee, R Eymont	
11.40am – 11.50am	Understanding the feasibility of micro-credentials in engineering education Brenden Mischewski, A Christie	He Toki engineering leaders A Te Whetu, Kym Hamilton, E Tarena	Developing critical thinking and intellectual design skills via collaborative projects in engineering and business postgraduate studies Mahyar Shirvanimoghaddam	
11.50am – 12.00pm	Using micro-credentials to improve Pasifika participation in engineering education	Strategies for promoting cultural diversity within student laboratory	Finding the sweet spot - The key to enduring industry relationships Jennifer Turner, T Smith, E Crossin	

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	Neel Pandey, L Falema'a	groups in an engineering degree course at an Australian University Seeta Jaikaran-Doe, B Leòn de la Barra, S Lyden, I Wang, F Fan, A Henderson, E Franklin, P Doe		
12.00pm – 12.30pm	Discussion	Discussion	Discussion	
12.30pm – 1.30pm	Lunch and Exhibition <i>Venue:</i>			
1.30pm – 3.00pm	Parallel Sessions			
	Parallel Session 2A <i>Venue:</i> <i>Chair: Mohammad Al-Rawi</i>	Parallel Session 2B <i>Venue:</i> <i>Chair:</i>	Parallel Session 2C <i>Venue:</i> <i>Chair:</i>	Workshop 2D <i>Venue:</i> <i>Chair:</i>
1.30pm – 1.40pm	Using census data to better understand engineering occupational outcomes Stuart Palmer, M Campbell	A framework for promoting diverse voices in the design cycle <i>E Lynch, Chris Browne</i>	Effectiveness of first year mentoring program on increasing student sense of belonging and correlation with motivation Charles Hoke, W Smith, K Wilson	1.30pm – 3.00pm Design factory New Zealand: A co-creation space where students work in multidisciplinary teams with industry partners to solve complex problems Elna Fourie, Aidan Bigham
1.40pm – 1.50pm	Rethinking progression of engineering students: Influential factors Xianbo Zhao, J Pienaar, F Martin	Using culturally relevant game-based education strategy Anuroop Gaddam	First contact – engaging engineering students in professional skills <i>C Mankelow, Jim Hefkey</i>	
1.50pm – 2.00pm	Employer and lecturer perspectives of science and engineering graduate competencies: Implications for curricular and pedagogical practice Elaine Khoo, Karsten Zegwaard, Aminath Adam	Supporting diversity: The emotional experience of different minority groups <i>K Wilson, Kate Wilson</i>	A novel approach to professional empowerment of engineers Peter Cebon, Juliana Kaya Prpic, A Ooi	
2.00pm – 2.10pm	Reflective practice in continuous professional development Thanh Nguyen, M Bevis, J Lamborn	A conceptual framework to analyse diversity of perceptions in engineering students of learning management concept Kourosh Dini, A Blicblau, A Abdekhodae	Enhancing students' reflections in performance planning and review subjects Reza Mahinroosta, J Devitt	
2.10pm – 2.20pm	A new professional engagement program – outline and initial outcomes Anthony Kadi, D Lowe	Capitalising on student diversity in a masters level unit of study on safety systems and risk analysis Rodney Fiford	Write your own reference: An innovative assessment strategy for quality self-reflections in engineering education	

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			Miao Li, E Lindsay	
2.20pm – 2.30pm	Mapping competency of final year engineering projects with AQF8 goals Mohammad Rasul, A Sayem, U Mumtahina	Dancing at the party: Educational Practices in Engineering Education that Foster Diversity & Inclusion Rosemary Chang, F Maclean, J Dohaney, L Mann	A numerical unhappiness function for allocating cadet engineers to placement positions E Lindsay, Reza Mahinroosta	
2.30pm – 3.00pm	Discussion	Discussion	Discussion	
3.00pm – 3.30pm	Afternoon Tea and Exhibition <i>Venue:</i>			
	Workshop 3A <i>Venue:</i> <i>Chair:</i>	Workshop 3B <i>Venue:</i> <i>Chair:</i>	Workshop 3C <i>Venue:</i> <i>Chair:</i>	
3.30pm – 5.00pm	Beyond the qualification – a guided self-assessment for future-proofing engineering education for a diverse workforce Natalie Lloyd, Eva Cheng, Art Agrawal	Implementing virtual work integrated learning Sally Male, David Pointing, Doug Hargreaves	Engineering futures 2035 C Crosthwaite, D Hargreaves, J Wilson, P Lee, B Foley, I Burnett, T Goldfinch, Mark Symes	

Tuesday 11 December 2018

7.30am	Registration Opens <i>Venue: The University of Waikato, Hamilton</i>			
8.00am – 9.35am	Parallel Sessions			
	Parallel Session 4A <i>Venue:</i> <i>Chair:</i>	Parallel Session 4B <i>Venue:</i> <i>Chair:</i>	Parallel Session 4C <i>Venue:</i> <i>Chair:</i>	Workshop 4D <i>Venue:</i> <i>Chair:</i>
8.00am – 8.10am	Development of student confidence for academic success Aaron Blicblau	Beyond the classroom: STEM, employABILITY thinking and the student voice Emily Bennett, Dawn Bennett	Demystifying contemporary learner engagement: CQUniversity Engineering Aruna Jayasuriya, F Martin, B Taylor	8.00am – 9.30am Validating storytelling for indigenous knowledge teaching Cat Kutay, Elysebeth Leigh
8.10am – 8.20am	One step ahead of national strategy: Integrating global competence in engineering education Bjørn Kjellgren, E Keller	Visually exploring sentiment and keywords for analysing student satisfaction data Samuel Cunningham-Nelson, M Baktashmotlagh, W Boles	Student engagement: how to quantify Nirmal Mandal	
8.20am – 8.30am	Reducing software engineers' "Fear of the large" Chris McDonald	Exploring the student experience of industry placements using sentiment analysis Melanie Fleming, B Coulter, S Weaver	Assessment of engineering professional skills through EPSA rubric class administrations Hadisantono Hadisantono, G Rowe, N Giacaman	
8.30am – 8.40am	Complexity makes me feel incompetent and it's your fault Keith Willey, T Machet	Improving student engagement, experience and performance through experiential learning in a first year Engineering Mechanics course Shanmuganathan Gunalan, B Gilbert, H Guan, H Karampour, J Crough	Creative engineering graduates – developing diverse thought John Baxter-Lindsay, P Briozzo	
8.40am – 8.50am	Can one class hour improve creative problem solving self-efficacy John Smith, I Belski, N Brown, J Kalyvas	Feedback approach and its effectiveness; finding a new way to utilize the feedback more effectively in undergraduate engineering studies Mohammad Rasul	Lessons learned: Understanding online engagement satisfaction in a large postgraduate Information Assurance Principles (IAP) course Elena Sitnikova, M Saberi, K Joiner, D Townsend, E Robertson	
8.50am – 9.00am	Human-centrics and design thinking in engineering practice Warren Reilly, B McBride	Towards deterring contract cheating: Stimulating students'	Regular and automatic feedback of concepts as formative assessment	

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		motivation through authentic assessment design Samer Skaki, J Borg	Samuel Cunningham-Nelson, M Mukherjee, A Goncher, W Boles	
9.00am – 9.30am	Discussion	Discussion	Discussion	
9.30am – 10.00am	Morning Tea and Exhibition <i>Venue:</i>			
10.00am – 11.30am	Plenary Session 2 <i>Venue:</i> <i>Chair:</i>			
10.00am – 10.45am	Fullbright Scholar Donna Riley			
10.45am – 11.30am	Panel Discussion Donna Riley Sonja Macfarlane (Ngai Tahu) Richard Coll Sheryl Sorby			
11.30am – 12.30pm	Lunch and Exhibition <i>Venue:</i>		AAEE Annual General Meeting	
12.30pm – 2.00pm	Parallel Sessions			
	Parallel Session 5A <i>Venue:</i> <i>Chair:</i>	Parallel Session 5B <i>Venue:</i> <i>Chair:</i>	Parallel Session 5C <i>Venue:</i> <i>Chair:</i>	Workshop 5D <i>Venue:</i> <i>Chair:</i>
12.30pm – 12.40pm	ATAR, prior knowledge and performance in idea generation Gavin Buskes, I Belski	Evaluating the impact of the YoWIE summer school on girls' perception of engineering Toby Boyson	A heutagogical approach for teaching a numerical analysis subject in engineering Peter To, R Tuladhar	12.30pm – 2.00pm Discussion Developing 3-D spatial skills for engineering success Sheryl Sorby
12.40pm – 12.50pm	If I don't have a language to discuss and think about it then it's not part of my reality Keith Willey, A Gardner	Spatial skills and problem solving: Comparing low and high visualisers across genders in chemical engineering Grace Panther, S Sorby	Combined civil engineering and surveying field week – improved student outcomes Bruce Harvey	
12.50pm – 1.00pm	Facilitating effective teamwork - engineering instructors' perspectives on strategies Jiachun Huang, T Vo, S Wordley, K Ryan	Strategies to increase equity and access in engineering internships Natalie Lloyd, S Male, M Paull	Creativity in mechanical design: The use of visually diverse ethnography methodologies for better practice Paul Briozzo, R Fiford	
1.00pm – 1.10pm	Individual student assessment in team projects: A team charter approach	Capstone mechanical engineering design project – develop an interactive ball run display as	Safe system learning for tertiary road transport engineering students	

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	Nirmal Mandal	STEM activity for the Waikato Museum Shen Hin Lim, P Higgins, R Jangali, G Neshausen	Christopher Stokes, W Moon, J Strandroth, J Woolley, N Johansson	
1.10pm – 1.20pm	Encouraging engineering students participation in face-to-face peer learning Rina Shvartsman, L Fan, V Trieu	Is engineering for me? Do girls have enough information to decide? Janis Swan, B Cowie	Factors that influence peer learning in social media enhanced engineering courses Mohsen Dokhanchi, L Kavanagh, C Reidsema	
1.20pm – 1.30pm	Implementation of marker training exercises to improve marking reliability and consistency Gavin Buskes, H Chan	Where do New Zealand female engineers come from? Insights from a quantitative analysis Paul Docherty	Spatial skills and their correlation with engineering problem-solving Sheryl Sorby	
1.30pm – 2.00pm	Discussion	Discussion	Discussion	
2.00pm – 2.30pm	Afternoon Tea and Exhibition <i>Venue:</i>			
	Workshop 6A <i>Venue:</i> <i>Chair:</i>	Workshop 6B <i>Venue:</i> <i>Chair:</i>	Workshop 6C <i>Venue:</i> <i>Chair:</i>	
2.30pm – 4.00pm	Cultural diversity in engineering laboratory and project group work Seeta Jaikaran-Doe, B Leon de la Barra, I Wang, A Henderson, E Franklin, P Doe	Facilitating interdisciplinary teamwork with boundary negotiating artifacts Kacey Beddoes	Future proofing the workforce through employABILITY thinking: Teaching and research in practice Dawn Bennett	
4.30pm	Transport departs for Hobbiton Movie Set from The University of Waikato			
6.30pm till late	Conference Dinner <i>Venue: Hobbiton Movie Set, Matamata</i>			

Wednesday 12 December 2018

8.00am	Registration Opens <i>Venue: The University of Waikato, Hamilton</i>			
9.00am – 10.30am	Plenary Session 2 <i>Venue: The University of Waikato, Hamilton</i> <i>Chair:</i>			
9.00am – 9.45am	Richard Coll			
9.45am – 10.15am	Morning Tea and Exhibition <i>Venue:</i>			
10.15am – 11.45pm	Parallel Sessions			
	Parallel Session 7A <i>Venue:</i> <i>Chair:</i>	Parallel Session 7B <i>Venue:</i> <i>Chair:</i>	Parallel Session 7C <i>Venue:</i> <i>Chair:</i>	Workshop 7D <i>Venue:</i> <i>Chair:</i>
10.15am – 10.25am	To develop a sustainable model for improving the pass rates of engineering maths of New Zealand Diploma in Engineering (NZDE) Yusuf Khan	Experiencing disability: A preliminary analysis of professional identity development in U.S. undergraduate civil engineering students Cassandra Groen-McCall , <i>L McNair, M Paretti, A Shew, D Simmons</i>	How to maintain the conversation, group work and peer assessment when a modest post-graduate course goes big Navid Haghdadi , <i>I MacGill</i>	11.00am – 12.30pm Technology-enabled international joint courses Ang Liu, Yun Dai, S Lu , <i>A Trowbridge</i>
10.25am – 10.35am	Identifying students' procedural and conceptual difficulties with mathematics Nigel Shepstone	Recognising diversity in the improvement of educational practice <i>H Marzbani, M Jollands, Colin Kestell</i>	Implementation of team-teaching in a large class through a flipped learning approach for an engineering design unit Mohd-Zulhilmi Paiz Ismadi , <i>L Jones, S Wordley</i>	
10.35am – 10.45am	Strategies for teaching engineering mathematics Maree Lake , <i>N Lake</i> , <i>R Vasquez Padilla</i>	Reflecting on our own learning: Incorporating diverse worldviews into teaching and learning activities Mohammad Al-Rawi , <i>J Khanna, A Lazonby</i>	Team-based assessment in a large class Kana Kanapathipillai , <i>L Collins</i>	
10.45am – 10.55am	Teaching Physics concepts without (much) mathematics: View through a concept-index, threshold-concept lens <i>M Wilson, L Streeter, S Seshadri</i> , Jonathan Scott	Understanding student absenteeism in undergraduate engineering programmes <i>S Bakrania</i> , Chris Whittington , <i>T Anderson, R Nates</i>	Delivering and engineering course across multiple campuses and online Fae Martin , <i>A Jayasuriya, B Taylor</i>	

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10.55am – 11.05am	Mathematics in a practice-based course: Entry requirements and diversity Emily Cook	A human centred design ‘makerthon’: The creation of a framework for teaching humanitarian engineering competencies Wenqian Gan, R Fjford, N Brown, S Perkins, C Wong	Teaching safety in design in large classes using VR Sally Male, P Kenworthy, G Hassan, A Guzzomi, T Van Der Veen, J French	
11.05am – 11.15am	A new learning environment through improved learning objectives in an introductory solid mechanics course Christopher McGann	Developing awareness of stakeholders: Contrasting professional ethics education in engineering and medicine Iain Skinner, A Torda	Redesign of first year ‘Principles of Engineering Design’ course E Hakansson, H Namik, Febelyn Reguyal, C Toma	
11.15am – 11.45am	Discussion	Discussion	Discussion	
11.45am – 12.45pm	Lunch and Exhibition <i>Venue:</i>			
12.45pm – 2.25pm	Parallel Sessions			
	Parallel Session 8A <i>Venue:</i> <i>Chair:</i>	Parallel Session 8B <i>Venue:</i> <i>Chair:</i>	Parallel Session 8C <i>Venue:</i> <i>Chair:</i>	Workshop 8D <i>Venue:</i> <i>Chair:</i>
12.45pm – 12.55pm	Application of BYOD-based pedagogy in engineering education Hossein Askarinejad, L Alton	A pilot initiative on improving students’ task value perceptions of high school mathematics through practical STEM interventions Benjamin Taylor, C McLean, A Duncan, A Jayasuriya, R Dodd, T Whiting	Student perceptions of open-book and closed-book exams in postgraduate engineering management subjects Hiyam Al-Kilidar, A Sixsmith, R Leveaux, G Mooney	1.30pm – 3.00pm He Awa Whiria: Weaving indigenous and western perspectives and creating inclusion in Australasian engineering education Matthew Hughes, Juliana Kaya Prpic, Tom Goldfinch, Jade Kennedy
12.55pm – 1.05pm	Investigation of learning resource requirement to improve student engagement and satisfaction Shaminda de Silva, T James, A Jayasuriya, T Simpson	What’s your purpose? Redefining the being and becoming of future engineers through professional purpose Jacqueline Dohaney, L Mann, A Coddington	Changing student dispositions to learning: Preliminary findings of a case study Nigel Robertson	
1.05pm – 1.15pm	Streamlining student course requests using chatbots Melanie Fleming, P Riveros, C Reidsema, N Achilles	Attracting future engineers through practical and collaborative initiatives Levinia Paku, M Jenson, R Evans	Conceptualisations of academic rigour in engineering degree programs David Lowe, K Willey	
1.15pm – 1.25pm	A computer-assisted, personalized approach for efficient evaluation	Future proofing engineers through embedded systems design	Fostering project management competencies in undergraduate	

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	of large-scale assessment applications <i>L Senevirthna, A Goncher, James Morgan</i>	D Preethichandra, U Izhar	engineering: An exploration of the use of management-educated tutors as coaches in problem-based learning Elaine Khoo, Jonathan Scott, David McKie, Bronwen Cowie
1.25pm – 1.35pm	Diverse students and lecture recording technology: Can lecture recording replace lectures? Maimuna Musarrat, N Huda, B Williams, B Loch	Pedagogy, practice, participation: Reimagining edtech onboarding Sharanya Yoganathan, N Sherburn, V Halupka, J Li	The future of intelligent education is not artificial Rudolf Zettler
1.35pm – 1.45pm	Thinking outside of the (Augmented Reality Sand) box Guien Miao, S Clarke, R Mammucari, L Parker	Articulation of Chinese students into an Australian engineering degree Seeta Jaikaran-Doe, S Lyden, Peter Doe	Core Concepts and Challenges in Sustainable Engineering Education in Australia Michele Rosano, J Scott, B Cowie
1.45pm – 1.55pm	An investigation on learning fundamental structural concepts and practical evaluation of e-learning through the platform Xorro-Q James Lim	Can we select students who will go on to be successful engineers? Enda Crossin, J Dohaney	Students as partners: developing a dialogue for change Melanie Fleming, L Kavanagh, C Reidsema, A Waris, M Lee, S Liu, R Kara-Manning
1.55pm – 2.25pm	Discussion	Discussion	Discussion
2.25pm – 3.10pm	Conference Closing Presentation of Best Paper and Best Reviewer Awards Closing Remarks and AAEE 2019 Handover Poroporoaki		

Thursday 13 December 2018	
	Associated Deans Teaching and Learning (ADTL) workshop <i>Venue: S Block, University of Waikato, Hamilton</i>