

# 28<sup>th</sup> Australasian Association for Engineering Education Conference (AAEE2017)



10-13 December, Manly, Sydney

## Sunday 10<sup>th</sup> December 2017

5.30 pm - 7.00 pm		Pre-conference Registration	Conference Foyer
6.00 pm - 7.30 pm		Welcome Reception	Conference Foyer

## Day 1: Monday 11<sup>th</sup> December 2017

Opens 8.30 am		Conference registration and information desk	Conference Foyer
9.00 am – 9.40 am	Opening Ceremony	Welcome to Country by Karen Smith	The Grand Ballroom
		Welcome by Conference Chair - Professor Graham Town	The Grand Ballroom
		Opening by Professor S Bruce Dowton (Vice Chancellor, Macquarie University)	The Grand Ballroom
9.40 am – 10.25 am	Keynote presentation	Lindie Clark (Academic and Programs Director, PACE, Macquarie University) - "Integrative practice in the making of a 21st century graduate" <i>Chairperson: Professor Graham Town</i>	The Grand Ballroom
		Delegate's group photograph	The Grand Ballroom

<b>10.30 am – 11.00 am</b>		Morning Tea				
<b>Parallel sessions</b>						
		<b>Clarendon Room</b>	<b>Norfolk Room</b>	<b>Cutler Room</b>	<b>Barton Room</b>	<b>Clontarf Room</b>
<b>11.00 am – 12.30 pm</b>		Parallel session M1A Theme: C1, Chair: M. Symes	Parallel session: M1B, Theme: C1, Chair: AJ. Hunter	Parallel session: M1C, Theme: C2, Chair: L. Johns-Boast	Focus session: M1S1, Chair: Bennet and Male	Workshop 107: Sharing Intro-Circuits Teaching Experience for Innovative Practice - <b>David Lowe, Roger Hadgraft and Xi Jin</b>
<b>12.30pm – 1.30 pm</b>	Lunch Break					
<b>1.30pm – 3.00 pm</b>		Parallel session: M2A, Theme: C1, Chair: M. Jollands	Parallel session: M2B, Theme: C1, Chair: J. Swan	Parallel session: M2C, Theme: C2, Chair: M. Marcus	Parallel session: M2D, Theme: C4, Chair: C. Whittington	Workshop 73: Planning Engagement with Professional Practice throughout the Program - <b>Sally Male, Doug Hargreaves and David Pointing</b>
<b>3.00 pm – 3.30 pm</b>	Afternoon Tea					
<b>3.30 pm – 5.00 pm</b>		Parallel session:M3A, Theme: C1, Chair: R. Goldsmith	Parallel session:M3B, Theme: C1, Chair: M. Al-Rawi	Parallel session: M3C, Theme: C3, Chair: G. Miao	Parallel session: M3D, Theme: C4, Chair: C. Kutay	Workshop 63: Integrating Creativity Into Curriculum: Let Us Listen To Students - <b>Iouri Belski</b>
<b>5.00 pm – 5.15 pm</b>	<b>Day 1 Closing</b>					

**Day 2: Tuesday 12th December 2017**

<b>Opens 8.30 am</b>		Conference registration and information desk			Conference Foyer	
<b>9.00 am – 9.45 am</b>	<b>Keynote presentation</b>	<b>Brian Frank (Queen's University, Canada) - "Collaborative evidence-based program improvement processes in Engineering",</b> <i>Chairperson: Professor Darren Bagnall</i>			The Grand Ballroom	
<b>9.45 am – 10.15 am</b>	<b>Special Guest Lecture</b>	<b>Chris Arkins - "Multi-disciplinary based learning - Successes of the Sydney Opera House MADE program",</b> <i>Chairperson: Professor Darren Bagnall</i>			The Grand Ballroom	
<b>10.15 am – 10.40 am</b>	Morning Tea					
<b>Parallel sessions</b>						
		<b>Clarendon Room</b>	<b>Norfolk Room</b>	<b>Cutler Room</b>	<b>Barton Room</b>	<b>Clontarf Room</b>
<b>10.40 am – 12.10 am</b>		Parallel session: T1A, Theme: C1, Chair: B. McBride	Workshop 236: Integrating sustainability into engineering education via project based curricula: a national sustainability competition - <b>Michele Rosanoa, Roger Hadgraftb, and Sally Male</b>	Parallel session: T1C, Theme: C3, Chair: I. Skinner	Focus session: T1S2, Chair: G. Cascini	Workshop 90: Resources for developing a Management System for Engineering Education (MaSEE) - <b>Bernadette Foley, Edward Palmer, Tiffany Gill, Bouchra Senadji and Elisa Martinez Marroquin</b>
<b>12.10 pm – 1.30 pm</b>	Lunch in Conference Foyer and <b>AAEE AGM in Cutler Room</b>					
<b>1.30pm – 3.00 pm</b>		Parallel session: T2A, Theme: C1, Chair: D. Lowe	Parallel session: T2B, Theme: C1, Chair: T. Harris	Parallel session: T2C, Theme: C5, Chair: Chair: N. Tse	Focus session: T2S2, Chair: P. Livotov	Workshop 42: Integrating Community Engagement into Engineering Service-Learning - <b>Jennifer Turner and Jeremy Smith</b>

<b>3.00 pm – 3.30 pm</b>	Afternoon Tea				
<b>3.30 pm – 5.00 pm</b>	Parallel session: T3A, Theme: C1, Chair: R. Eaton	Workshop 234: Professional Performance in University Education and Work Integrated Learning - <b>Ashley Brinson, Brendyn Williams, John Nurse</b>	Parallel session: T3C, Theme: C3, Chair: S. Daniel	Focus session: T3S2, Chair: L. Chechurin	Workshop 100: Adapt your teaching: Create Your Own Interactive Adaptive Tutorial - <b>Heather Weltman</b>
<b>6.30pm – 10.30 pm</b>	Conference Dinner (The Grand Ballroom, Novotel Manly)				
	Day 2 Closing				

<b>Day 3: Wednesday 13<sup>th</sup> December 2017</b>			
<b>Opens 8.30 am</b>		Conference registration and information desk	Conference Foyer
<b>9.00 am – 9.45 am</b>	<b>Keynote presentation</b>	<b>Professor James Trevelyan (University of Western Australia) - "Why do we do engineering?"</b> <i>Chairperson: Dr Nazmul Huda</i>	The Grand Ballroom
<b>9.45 am – 10.40 am</b>		<b>Panel Discussion facilitated by Robin King on "Directions for Engineering Education: the Engineer of 2035"</b>	The Grand Ballroom
<b>10.40 am – 11.10 am</b>	Morning Tea		

Parallel sessions						
		Clarendon Room	Norfolk Room	Cutler Room	Barton Room	Clontarf Room
11.10 am – 12.40 pm		Parallel session: W1A, Theme: C2, Chair: A. Goncher	Parallel session: W1B, Theme: C2, Chair: T. Goldfinch	Workshop 163: “It’s Not all technical ...”: - A pragmatic approach to ‘soft skills’ development across a program - <b>Nicholas Tse, Natalie Spence and Fiona Jones</b>	Focus session: W1S3, Chair: Smith and Mazzurco	Workshop 190: Assessing practical skills in engineering - <b>Siva Krishnan and Tiffany Gunning</b>
12.40pm – 1.40 pm	Lunch Break					
1.40pm – 3.10 pm		Parallel session: W2A, Theme: C5, Chair: Chair: D. Inglis	Workshop 232: Designing Authentic and Effective Assessments: How can this assist in minimising contract cheating - <b>Hazel Jones and Jo Devine</b>	Workshop 83: Another Step Towards an Internationally-Inclusive Framework Characterizing the Impact of Engineering Education Research - <b>Anne Gardner and Jeremi London</b>	Focus session: W2S3, Chair: Smith & Mazzurco	Workshop 191: How do we integrate Indigenous perspectives in engineering education? <b>Juliana Kaya Prpic, Tom Goldfinch and Jade Kennedy</b>
	Afternoon Tea and preparing grand ballroom for conference closing					
3.10 pm – 3.40 pm	<b>Conference Closing (Graham Town)</b> <b>Presentation of Best Paper and Best Reviewer Awards, Closing Remarks and AAEE2018 Handover</b>					

### Details of parallel sessions:

**Monday 11th December**

**Parallel Session: M1A, Clarendon Room, Chair: M. Symes**

**Theme: C1 - Integration of theory and practice in the learning and teaching process**

Time	Paper number	Title and author
11.00 am – 11.10 am	115	A flipped classroom with low-stakes assessment to maintain student engagement and integrate theory and practice - <i>Braden Phillips and Michael Liebelt</i>
11.10 am – 11.20 am	7	Flipped learning not flopped learning - <i>Cat Kutay, Anthony Kadi and John Canning</i>
11.20 am – 11.30 am	16	A new strategy for active learning to maximise performance in intensive courses - <i>Mohammad Al-Rawi and Annette Lazonby</i>
11.30 am – 11.40 am	174	Laboratory Learning: Hands-on versus Simulated Experiments - <i>Fabian Steger, Alexander Nitsche, Cayler Miley, Hans-Georg Schweiger and Iouri Belski</i>
11.40 am – 11.50 pm	227	Researching reflection in an engineering internship program - <i>Alan Parr and Xi Jin</i>
11.50 am – 12.00 pm	166	Inclusiveness in Australian Engineering Education - <i>Simon Cavenett</i>
12.00 pm – 12.30 pm		Discussion

**Monday 11th December**

**Parallel Session: M1B, Norfolk Room, Chair: AJ. Hunter**

**Theme: C1 - Integration of theory and practice in the learning and teaching process**

Time	Paper number	Title and author
11.00 am – 11.10 am	60	Developing three-dimensional engineers through project-based learning - <i>Sally Inchbold-Busby and Rosalie Goldsmith</i>
11.10 am – 11.20 am	70	Developing students' employability in work placements - <i>Margaret Jollands, Wageeh Boles and J. Fiona Peterson</i>
11.20 am – 11.30 am	17	Engineering Exposure to Professional Practice: Navigating the requirements - <i>William McBride and Bernadette Foley</i>
11.30 am – 11.40 am	157	eLearning initiatives - can their effectiveness really be measured? - <i>Dahlia Han, Melissa Gunn and Rachel Chidlow</i>
11.40 am – 11.50 am	231	An Integrating Teaching Resource for Materials Science and Engineering - <i>Claes Fredriksson and Joel Galos</i>
11.50 am – 12.00 pm	33	Mechanical engineering students' perceptions of workplace mentoring: A case study at a South African University of Technology - <i>Tiyamike Ngonda, Corrinne Shaw and Bruce Kloot</i>
12.00 pm – 12.30 pm		Discussion

**Monday 11th December**

**Parallel Session: M1C, Cutler Room, Chair: L. Johns-Boast**

**Theme: C2 - Interdisciplinary and cross-disciplinary engineering programs and learning environments**

Time	Paper number	Title and author
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<b>11.00 am – 11.10 am</b>	128	The engineering fundamentals are important...but what are they? - <i>Emily Cook and Llewellyn Mann</i>
<b>11.10 am – 11.20 am</b>	126	Engineers learning about Entrepreneurship: The journey through the lens of an engineering academic - <i>Helen Fairweather, Margarietha de Villiers Scheepers, Renee Barnes, Jane Taylor, Irene Visser and Katryna Starks</i>
<b>11.20 am – 11.30 am</b>	13	An initial step towards developing techno-entrepreneurs in the engineering curriculum - <i>Kourosh Dini and Aaron Blicblau</i>
<b>11.30 am – 11.40 am</b>	226	STEAMPunk Girls Co-Design: Exploring a more Integrated Approach to STEM Engagement for Young Women - <i>Sonia Saddiqui and Maya Marcus</i>
<b>11.40 am – 11.50 am</b>	25	Assessment of Self-Management Skills in a Project-Based Learning Paper - <i>Jonathan Scott, Elaine Khoo, Michael Cree and Sinduja Seshadri</i>
<b>11.50 am – 12.00 pm</b>	135	Cultural Contexts of Learning Preferences: Relative Dominance of Self-Directed versus Other-Directed Learning Styles - <i>Varghese Swamy, Vineetha Kalavally, Ta Yeong Wu, Alena Tan and Jonathan Li</i>
<b>12.00 pm – 12.30 pm</b>		Discussion

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**Monday 11th December**

**Focus Session: M1S1, Barton Room, Chair: Bennet and Male**

**Theme: S1 - Is Integrated Engineering Education Necessary?**

<b>Time</b>	<b>Paper number</b>	<b>Title and author</b>
<b>11.00 am – 11.10 am</b>	40	Metacognition as a graduate attribute: Employability through the lens of self and career literacy - <i>Dawn Bennett</i>
<b>11.10 am – 11.20 am</b>	89	Developing a Management System for Engineering Education (MaSEE) - <i>Bernadette Foley, Tiffany Gill, Bouchra Senadji, Edward Palmer and Elisa Martinez Marroquin</i>
<b>11.20 am – 11.30 am</b>	75	The Emerging Suite of Virtual Work Integrated Learning Modules for Engineering Students - <i>Sally Male</i>
<b>11.30 am – 11.40 am</b>	27	Integrated Engineering may be necessary, but perhaps design would be taken more seriously? - <i>Lynn Berry</i>
<b>11.40 am – 11.50 pm</b>	141	Student-Centred Curriculum Transformation - <i>Roger Hadgraft, Rob Jarman, Justine Lawson and Beata Francis</i>
<b>11.50 pm – 12.30 pm</b>		Discussion

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**Monday 11th December**

**Parallel Session: M2A, Clarendon Room, Chair: M. Jollands**

**Theme: C1 - Integration of theory and practice in the learning and teaching process**

<b>Time</b>	<b>Paper number</b>	<b>Title and author</b>
<b>1.30pm – 1.40 pm</b>	91	The Warman – Looking Beyond 30 Years - <i>Warren Smith, Craig Wheeler, Colin Burvill, Alex Churches and Tim Riley</i>
<b>1.40pm – 1.50 pm</b>	9	A Study on Integrating Case-Based Learning into Engineering Curriculum - <i>Eugene Tham and Lori Breslow</i>
<b>1.50pm – 2.00 pm</b>	32	Characterising the learning dispositions of first year engineering students - <i>Anne Gardner, Keith Willey and Thomas Goldfinch</i>
<b>2.00pm – 2.10 pm</b>	179	Implementation of Project-Oriented Design-Based Learning in a Second-Year Mechanical/Mechatronics Subject - <i>John Long, Siva Chandrasekaran and Michael Pereira</i>
<b>2.10pm – 2.20 pm</b>	220	Understanding Engineering Competencies in Practice and its Educational Implication - <i>Xi Jin and Roger Hadgraft</i>

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<b>2.20pm – 2.30 pm</b>	46	Implementing MUSIC Components to Enrich Engineering Capstone Projects: The Students' Perspective and the Instructors' Standpoint - <i>S. Ali Hadigheh and Daniel Dias-Da-Costa</i>
<b>2.30pm – 3.00 pm</b>		Discussion

**Monday 11th December**

**Parallel Session: M2B, Norfolk Room, Chair: J. Swan**

**Theme: C1 - Integration of theory and practice in the learning and teaching process**

<b>Time</b>	<b>Paper number</b>	<b>Title and author</b>
<b>1.30pm – 1.40 pm</b>	225	Running an Open MOOC on Learning in Laboratories - <i>Alexander Kist, Hannah Campos Remon, Lindy Orwin, Andrew Maxwell, Ananda Maiti, Peter Albion and Victoria Terry</i>
<b>1.40pm – 1.50 pm</b>	213	The Importance of Student and Faculty Feedback in Development of Virtual Engineering Laboratories - <i>Ali Altalbe and Neil Bergamnn</i>
<b>1.50pm – 2.00 pm</b>	127	Visualising Student Satisfaction - <i>Samuel Cunningham-Nelson, Mahsa Baktashmotlagh and Wageeh Boles</i>
<b>2.00pm – 2.10 pm</b>	94	Deviating from traditional lectures: Engineering students' perception of active learning - <i>Subeh Chowdhury</i>
<b>2.10pm – 2.20 pm</b>	20	Designing and Using Self-Paced Tutorials: Lessons from the Pilot - <i>Sasha Nikolic and Raad Raad</i>
<b>2.20pm – 2.30 pm</b>	87	Students' social and behavioural factors influencing the use of lecture capture technology and learning in engineering education - <i>Anisur Rahman, Mohammad Aminur Rahman Shah and Sanaul Huq Chowdhury</i>
<b>2.30pm – 3.00 pm</b>		Discussion

**Monday 11th December**

**Parallel Session: M2C, Cutler Room, Chair: M. Marcus**

**Theme: C2 -Interdisciplinary and cross-disciplinary engineering programs and learning environments**

<b>Time</b>	<b>Paper number</b>	<b>Title and author</b>
<b>1.30pm – 1.40 pm</b>	168	Creating shared value: An industry project framework - <i>Jennifer Turner and Llewellyn Mann</i>
<b>1.40pm – 1.50 pm</b>	116	A Problem Shared is a Problem Halved: Benefits of Collaborative Online Engineering L&T Content Development - <i>John Vulic, May Lim, Stefan Felder, Shaun Chan, Jesse Jones and Lorenzo Vigentini</i>
<b>1.50pm – 2.00 pm</b>	31	Enhancing Technical Writing Skills for Undergraduate Engineering Students - <i>Beverly Coulter, Roslyn Petelin, Justine Gannon, Kate O'Brien and Corrie Macdonald</i>
<b>2.00pm – 2.10 pm</b>	182	The Immersive Learning Laboratory: employing virtual reality technology in teaching - <i>Jacqueline Thomas, Kiran Ijaz, Benjy Marks and Peter Gibbens</i>
<b>2.10pm – 2.20 pm</b>	22	Making sense of Learning Management System's quiz analytics in understanding students' learning difficulties - <i>Antonette Mendoza, Harald Sondergaard and Anne Venables</i>
<b>2.20pm – 2.30 pm</b>		
<b>2.30pm – 3.00 pm</b>		Discussion

**Monday 11th December**

**Parallel Session: M2D, Barton Room, Chair: C. Whittington**

**Theme: C4 -The role and impact of engineering students and educators in the wider community**

<b>Time</b>	<b>Paper number</b>	<b>Title and author</b>
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<b>1.30pm – 1.40 pm</b>	167	Grounded by values: An emergent engineering practice - <i>Timothy Smith, Alicen Coddington, Jennifer Turner, Llewellyn Mann, Enda Crossin, Emily Cook, Sivachandran Chandrasekaran and Andrea Mazzurco</i>
<b>1.40pm – 1.50 pm</b>	185	Inclusive engineering education: making engineering degree work for more students - <i>Marina Belkina</i>
<b>1.50pm – 2.00 pm</b>	146	Engaging prospective students with Mechanical Engineering - <i>Ashlee Pearson, Scott Wordley, Jiachun Huang, Stephanie Duggan and Christopher Meikle</i>
<b>2.00pm – 2.10 pm</b>	51	Moral Development of Students Entering the Civil Engineering Bachelor - <i>Andrea Mazzurco, Homero Murzi and Ilje Pikaar</i>
<b>2.10pm – 2.20 pm</b>	3	Aboriginal Engineering - technologies for an enduring civilisation - <i>Cat Kutay and Elyssebeth Leigh</i>
<b>2.20pm – 2.30 pm</b>	72	Towards integration of the Māori world view and engineering: A case study on student design projects for the Koukourarata community, Aotearoa/New Zealand - <i>Matthew Hughes, Ricardo Bello Mendoza, Manaia Cunningham, Kendra Sharp and Richard Manning</i>
<b>2.30pm – 3.00 pm</b>		Discussion

#### Monday 11th December

##### Parallel Session: M3A, Clarendon Room, Chair: R. Goldsmith

##### Theme: C1 - Integration of theory and practice in the learning and teaching process

Time	Paper number	Title and author
<b>3.30 pm – 3.40 pm</b>	125	The use of threshold exams to change students learning culture and provide assurance of learning - <i>Keith Willey and Anne Gardner</i>
<b>3.40 pm – 3.50 pm</b>	71	Student Experiences of Threshold Capability Development in a Computational Fluid Dynamics Unit Delivered in Intensive Mode - <i>Jeremy Leggoe and Sally Male</i>
<b>3.50 pm – 4.00 pm</b>	11	Mapping the Integrated Research Landscape on Gender and Teamwork in Higher Education: 2000-2016 - <i>Kacey Beddoes and Grace Panther</i>
<b>4.00 pm – 4.10 pm</b>	97	Role of Experiential Learning in PM Education - <i>Louis Taborda, Li Liu and Lynn Crawford</i>
<b>4.10 pm – 4.20 pm</b>	80	Engineering as a “Thinkable” Career for Women - <i>Bronwen Cowie, Margaret Paiti and Janis Swan</i>
<b>4.20 pm – 4.30 pm</b>		
<b>4.30 pm – 5.00 pm</b>		Discussion

#### Monday 11th December

##### Parallel Session: M3B, Norfolk Room, Chair: M. Al-Rawi

##### Theme: C1 - Integration of theory and practice in the learning and teaching process

Time	Paper number	Title and author
<b>3.30 pm – 3.40 pm</b>	82	Explicitly teaching teamwork and written communication within a problem based curriculum: Development of a generalised framework - <i>David Holmes and Michelle Lasen</i>
<b>3.40 pm – 3.50 pm</b>	37	Integrating Professional Practice in the Engineering Curriculum: BE/ME Chemical Engineering Students’ Experiences in Industry Placements - <i>Homero Murzi, Andrea Mazzurco and Beverly Coulter</i>
<b>3.50 pm – 4.00 pm</b>	117	Through the Looking Glass: Visualising Design Details with Augmented Reality - <i>Nicholas Yee Kwang Tee, Hong Seng Gan, Andy Huynh, Veronica Halupka and Jonathan Li</i>
<b>4.00 pm – 4.10 pm</b>	119	Transformation in Engineering Education – A Case Study of Remote Learning experiences in China - <i>Van Thanh Huynh, Siva Chandrasekaran, John Long, Yufei Guo and Ian Gibson</i>

4.10 pm – 4.20 pm	88	Intensive Mode Teaching for the delivery of engineering content to students at a Chinese university - <i>Peter Doe, Seeta Jaikaran-Doe, Sarah Lyden, Ming Liu, Bingzhong Ren, Peng Yang and Sally Male</i>
4.20 pm – 4.30 pm		
4.30 pm – 5.00 pm		Discussion

**Monday 11th December**

**Parallel Session: M3C, Cutler Room, Chair: G. Miao**

**Theme: C3 - Integration of teaching and research in the engineering training process**

Time	Paper number	Title and author
3.30 pm – 3.40 pm	92	Evaluation of a redesigned Engineering degree founded on project based learning - <i>Mark Tunnicliffe and Nicola Brown</i>
3.40 pm – 3.50 pm	26	Integration of Applied Research in Polytechnic Engineering Education - <i>Hossein Askarinejad and Matt Ramezaniapour</i>
3.50 pm – 4.00 pm	93	Ethics problems found challenging by research students - <i>Iain Skinner</i>
4.00 pm – 4.10 pm	68	Understanding Capacity in Creativity and Problem Analysis among Engineering Students - <i>Dorothy Missingham, Antoni Blazewicz, David Strong, Mei Cheong and Harry Lucas</i>
4.10 pm – 4.20 pm	10	Comparing Students and Practicing Engineers in Terms of How They Bound Their Knowledge - <i>Grace Panther and Devlin Montfort</i>
4.20 pm – 4.30 pm		
4.30 pm – 5.00 pm		Discussion

**Monday 11th December**

**Parallel Session: M3D, Barton Room, Chair: C. Kutay**

**Theme: C4 - The role and impact of engineering students and educators in the wider community**

Time	Paper number	Title and author
3.30 pm – 3.40 pm	224	Integrated Pathways: Connecting the Disconnected - <i>Trudy Harris, Johnny Gordon, Bandana Kumar and Paul Price</i>
3.40 pm – 3.50 pm	153	History and Philosophy of Engineering - <i>Rod Fiford</i>
3.50 pm – 4.00 pm	114	Changing Role of Modern Engineers and Social Responsibility - <i>Sangeeta Karmokar</i>
4.00 pm – 4.10 pm	104	STEM for Women and Ethnic Communities in Aotearoa (New Zealand) - <i>Chris Whittington and Sangeeta Karmokar</i>
4.10 pm – 4.20 pm	49	STEM Intervention Strategies: Sowing the Seeds for More Women in STEM - <i>Miranda Ge and Jonathan Li</i>
4.20 pm – 4.30 pm		
4.30 pm – 5.00 pm		Discussion

**Tuesday 12th December**

**Parallel Session: T1A, Clarendon Room, Chair: B. McBride**

**Theme: C1 - Integration of theory and practice in the learning and teaching process**

Time	Paper number	Title and author
10.40 am – 10.50 am	96	Mixing Teaching Approaches to Maximise Student Learning Experiences - <i>Charles Lemckert and Amir Etemad Shahidi</i>

<b>10.50 am – 11.00 am</b>	105	Towards an informed course design - <i>Bill Collis, Chen Wang, Gerard Rowe, Elizabeth Rata and Graham McPhail</i>
<b>11.00 am – 11.10 am</b>	120	Pointers to Conceptual Understanding - <i>Samuel Cunningham-Nelson, Andrea Goncher, Michelle Mukherjee and Wageeh Boles</i>
<b>11.10 am – 11.20 am</b>	44	Tangible Teaching Tools: The Use of Physical Computing Hardware in Schools - <i>Jarred Benham, Jonathan Li and Linda McIver</i>
<b>11.20 am – 11.30 am</b>	219	The Correlation between Practice Time and Student Improvement in Mathematics - <i>Nigel Shepstone</i>
<b>11.30 am – 11.40 am</b>	53	Refocusing Marking Practices to Enculturate Learning: Developing a Practice Architecture - <i>Alison-Jane Hunter, Dorothy Missingham, Colin Kestell and Linda Westphalen</i>
<b>11.40 am – 12.10 pm</b>		Discussion

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**Tuesday 12th December**

**Parallel Session: T1C, Cutler Room, Chair: I. Skinner**

**Theme: C3 - Integration of teaching and research in the engineering training process??**

<b>Time</b>	<b>Paper number</b>	<b>Title and author</b>
<b>10.40 am – 10.50 am</b>	74	Using Narrative Research Findings as Student Voice for Providing Insights into Transition Experiences in Engineering Education - <i>Luke Alao and Llewellyn Mann</i>
<b>10.50 am – 11.00 am</b>	95	We Built It and They Came: An Adaptive eLearning Experience - <i>Heather Weltman, Furqan Hussain and Nadine Marcus</i>
<b>11.00 am – 11.10 am</b>	23	What can we do to better support students in Thesis? - <i>Guien Miao, Lynn Berry and David Lowe</i>
<b>11.10 am – 11.20 am</b>	66	Future-Proof Engineers with Transformative Calibres - <i>Serene Lin-Stephens, Shaokoon Cheng and Agisilaos Kourmatzis</i>
<b>11.20 am – 11.30 am</b>	106	Self and Peer Assessment of Teamwork Activities - <i>Jiachun Huang, Scott Wordley and Ashlee Pearson</i>
<b>11.30 am – 11.40 am</b>	198	Application of Research Skills Development Framework (RSDf) in Sustainable Engineering Teaching and Learning - <i>Poovaras Balan</i>
<b>11.40 am – 12.10 pm</b>		Discussion

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**Tuesday 12th December**

**Focus Session: T1S2, Barton Room, Chair: G. Cascini**

**Theme: S2 - Educating the Edisons of the 21st Century**

<b>Time</b>	<b>Paper number</b>	<b>Title and author</b>
<b>10.40 am – 10.50 am</b>	218	Australian electrical engineering curricula and development of creativity skills: How do we rate? - <i>Andrew Valentine, Iouri Belski, Margaret Hamilton and Scott Adams</i>
<b>10.50 am – 11.00 am</b>	55	Modelling Innovation Process in Multidisciplinary Course in New Product Development and Inventive Problem Solving - <i>Pavel Livotov</i>
<b>11.00 am – 11.10 am</b>	56	The Allocation of Time Spent in Different Stages of Problem Solving: Problem finding and the development of engineering expertise - <i>Jennifer Harlim and Iouri Belski</i>
<b>11.10 am – 11.20 am</b>	47	International Student Online TRIZ (Teoriya Resheniya Izobretatelskikh Zadach) conferences: organizational experience and perspectives - <i>Viktor Berdonosov, Elena Redkolis and Won Young Song</i>

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11.20 am – 11.30 am	131	First year engineering students problem solving in different scenarios. - <i>Aaron Blicblau and Andrew Ang</i>
11.30 am – 11.40 am	65	Engineering Creativity – How To Measure It? - <i>Iouri Belski</i>
11.40 am – 12.10 pm		Discussion

**Tuesday 12th December**

**Parallel Session: T2A, Clarendon Room, Chair: D. Lowe**

**Theme: C1 - Integration of theory and practice in the learning and teaching process**

Time	Paper number	Title and author
1.30pm – 1.40 pm	176	Fast-Cars in Schools: a CADET Outreach Initiative - <i>John Long, Simon Cavenett, Jason Steinwedel and Leanne Collins</i>
1.40pm – 1.50 pm	212	A New Project Management regime - <i>Michael Netherton, Lisa Nelson and Bill McBride</i>
1.50pm – 2.00 pm	67	A new, common, experiential 'Engineering Practice' course - <i>Dylan Cuskelly and William McBride</i>
2.00pm – 2.10 pm	203	A "MetroGnome" as a tool for supporting self-directed learning - <i>Jim Morgan, Euan Lindsay and Kevin Sevilla</i>
2.10pm – 2.20 pm	133	Assessing the efficacy of embedding online laboratories in e-learning tutorials to enhance student engagement - <i>James Theodosiadis, Steve Steyn and Steve Mackay</i>
2.20pm – 2.30 pm	140	Quantitative Research Design to Evaluate Learning Platforms and Learning Methods for Cyber-security Courses - <i>Kamanashis Biswas and Vallipuram Muthukkumarasamy</i>
2.30pm – 3.00 pm		Discussion

**Tuesday 12th December**

**Parallel Session: T2B, Norfolk Room, Chair: T. Harris**

**Theme: C1 - Integration of theory and practice in the learning and teaching process**

Time	Paper number	Title and author
1.30pm – 1.40 pm	76	Long term study of attendance rates in a civil engineering unit of study - <i>Tim Wilkinson</i>
1.40pm – 1.50 pm	108	Redeveloping an introductory course in microcontrollers through the lens of educational theory - <i>Bill Collis, Gerard Rowe and Claire Donald</i>
1.50pm – 2.00 pm	79	Offshore Students' Perception of Intensive Engineering Subject Delivery: Case Study at an Indian University - <i>Kali Prasad Nepal</i>
2.00pm – 2.10 pm	184	Constructivist Simulations for Path Search Algorithms - <i>Alan Blair, David Collien, Dwayne Ripley and Selena Griffith</i>
2.10pm – 2.20 pm	84	Student Expectations: The effect of student background and experience - <i>Brent Phillips, Trudy Harris and Lynette Johns-Boast</i>
2.20pm – 2.30 pm		
2.30pm – 3.00 pm		Discussion

**Tuesday 12th December**

**Parallel Session: T2C, Cutler Room, Chair: N. Tse**

**Theme: C5 - Systems perspectives on engineering education**

Time	Paper number	Title and author
1.30pm – 1.40 pm	165	Defending interpretivist knowledge claims in engineering education research - <i>Scott Daniel, Llewellyn Mann and Alexander Mazzolini</i>
1.40pm – 1.50 pm	118	A systematic approach to teaching and learning development in engineering - <i>Tiffany Gunning and Siva Krishnan</i>
1.50pm – 2.00 pm	207	Creativity in Mechanical Design: Exploring Suitable Methodologies for Better Practice - <i>Paul Briozzo, Rodney Fiford and Peter Lok</i>
2.00pm – 2.10 pm	136	An Engineering Approach to Engineering Curriculum Design - <i>Michael Liebelt, Stephanie Eglinton-Warner, Wen Soong, Brian Ng, Braden Phillips, Said Al-Sarawi and Matthew Sorell</i>
2.10pm – 2.20 pm		
2.20pm – 2.30 pm		
2.30pm – 3.00 pm		Discussion

### Tuesday 12th December

**Focus Session: T2S2, Barton Room, Chair: P. Livotov**

**Theme: S2 - Educating the Edisons of the 21st Century**

Time	Paper number	Title and author
1.30pm – 1.40 pm	45	Introducing TRIZ Heuristics to Students in NZ Diploma in Engineering - <i>Konstantin Shukhmin and Iouri Belski</i>
1.40pm – 1.50 pm	111	What is easier to solve: open or closed problems? - <i>Christoph Dobrusskin</i>
1.50pm – 2.00 pm	216	Can Idea Generation Techniques Impede Effective Ideation? - <i>Andrew Valentine, Iouri Belski and Margaret Hamilton</i>
2.00pm – 2.10 pm	21	TRIZ - Trans-disciplinary innovation methodology - <i>Bohuslav Bušov and Vladimír Dostál</i>
2.10pm – 2.20 pm	36	Teaching creativity creatively - <i>Iuliia Shnai and Leonid Chechurin</i>
2.20pm – 2.30 pm	69	Prior Knowledge and Student Performance in Idea Generation - <i>Gavin Buskes and Iouri Belski</i>
2.30pm – 3.00 pm		Discussion

### Tuesday 12th December

**Parallel Session: T3A, Clarendon Room, Chair: R. Eaton**

**Theme: C1 - Integration of theory and practice in the learning and teaching process**

Time	Paper number	Title and author
3.30 pm – 3.40 pm	159	The Self Directed Learning Styles Survey as a Predictor of Success in a Problem-Based Learning Environment - <i>Kevin Sevilla, Andrea Goncher and Jim Morgan</i>
3.40 pm – 3.50 pm	142	Improving Presentation Skills of First-Year Engineering Students using Active Video Watching - <i>Antonija Mitrovic, Peter Gostonski, Alfred Alfred Herritsch and Vania Dimitrova</i>
3.50 pm – 4.00 pm	214	Worked Example Videos as a Valuable Blending Learning Resource in Undergraduate Engineering Units - <i>Sarah Barns, Edmund Pickering and Les Dawes</i>
4.00 pm – 4.10 pm	145	Educats: A Community of Practice - <i>Jiachun Huang, Ashlee Pearson, Nathan Sherburn, Thanh Huynh Nguyen, Tony Vo and Veronica Halupka</i>
4.10 pm – 4.20 pm	160	Mining students work experience reports - <i>Dorian Hanaor, David Airey and Peter Café</i>
4.20 pm – 4.30 pm		
4.30 pm – 5.00 pm		Discussion

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**Tuesday 12th December****Parallel Session: T3C, Cutler Room, Chair: S. Daniel****Theme: C3 - Integration of teaching and research in the engineering training process**

Time	Paper number	Title and author
3.30 pm – 3.40 pm	194	A systemic approach to improving tutor quality in a large unit - <i>Peter O'Shea and Philip Terrill</i>
3.40 pm – 3.50 pm	121	Staff competencies/capabilities required and challenges faced when delivering project based learning courses - <i>Nicola Brown and Mark Tunnicliffe</i>
3.50 pm – 4.00 pm	169	Effective use of Zoom technology and instructional videos to improve engagement and success of distance students in Engineering. - <i>Abu Shadat Muhammad Sayem, Benjamin Taylor, Mitchell Mcclanachan and Umme Muntahina</i>
4.00 pm – 4.10 pm	183	Towards the development and delivery of sustainable assessment in foundation engineering studies - <i>Benjamin Taylor, Lois Harris and Joanne Dargusch</i>
4.10 pm – 4.20 pm	215	Case study based teaching of process economics in the context of Chemical Engineering - <i>Meng Wai Woo</i>
4.20 pm – 4.30 pm		
4.30 pm – 5.00 pm		Discussion

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**Tuesday 12th December****Focus Session: T3S2, Barton Room, Chair: L. Chechurin****Theme: S2 - Educating the Edisons of the 21st Century**

Time	Paper number	Title and author
3.30 pm – 3.40 pm	110	A scientific framework for testing creativity enhancing techniques - <i>Niccolò Becattini and Gaetano Cascini</i>
3.40 pm – 3.50 pm	150	Developing student capacity for Start Up through integrating engaged, action and threshold learning models with a design thinking framework. - <i>Selena Griffith</i>
3.50 pm – 4.00 pm	223	TRIZ Education in Mainland China - <i>Lixin Wang</i>
4.00 pm – 4.10 pm	54	Developing a simulated Work-Integrated-Learning (WIL) program to improve problem solving skills of young engineers - <i>Jennifer Harlim, Debra Nestel and Iouri Belski</i>
4.10 pm – 4.20 pm	217	Analysis of Usage for Two Digital Format Ideation Templates - <i>Andrew Valentine, Iouri Belski and Margaret Hamilton</i>
4.20 pm – 4.30 pm		
4.30 pm – 5.00 pm		Discussion

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**Wednesday 13th December****Parallel Session: W1A, Clarendon Room, Chair: A. Goncher****Theme: C2 - Interdisciplinary and cross-disciplinary engineering programs and learning environments**

Time	Paper number	Title and author
11.10 am – 11.20 am	177	Generating an architectural brief for a twenty-first-century engineering education working and learning environment - <i>Alicen Coddington and Llewellyn Mann</i>
11.20 am – 11.30 am	129	In-Class and Asynchronous Student Response Systems: A Comparison of Student Participation and Perceived Effectiveness - <i>Lokesh Padhye and Marion Blumenstein</i>
11.30 am – 11.40 am	18	Embedding Authentic Practice Based Learning in Engineering Undergraduate Courses - <i>Chris Whittington, Tim Anderson and Andy Conner</i>
11.40 am – 11.50 pm	151	Motivating diverse student cohorts with problem based learning in undergraduate control engineering - <i>Felix H. Kong, Brian K.M. Lee and Ian R. Manchester</i>

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11.50 am – 12.00 pm	15	Interdisciplinary Collaborative Teaching in Project-Based Learning Approach - <i>Anna Lyza Felipe, Thanh Chi Pham, Minh Xuan Nguyen and Edouard Amouroux</i>
12.00 pm – 12.10 pm		
12.10 pm – 12.40 pm		Discussion

**Wednesday 13th December**

<b>Parallel Session: W1B, Norfolk Room, Chair: T. Goldfinch</b>		
<b>Theme: C2 - Interdisciplinary and cross-disciplinary engineering programs and learning environments</b>		
Time	Paper number	Title and author
11.10 am – 11.20 am	139	Attitudes Towards Software Engineering in Industry - <i>Catherine Watson and Kelly Blincoe</i>
11.20 am – 11.30 am	188	Towards a framework for evaluating diversity in STEM outreach programs - <i>Sam Cheah and Christopher Browne</i>
11.30 am – 11.40 am	235	Integrated Engineering – Implementation and Transition – <i>Graham Town</i>
11.40 am – 11.50 pm	197	What Difference Do the Differences Make: Cultural Differences as Learning Resources in a Global Engineering Course - <i>Yun Dai and Ang Liu</i>
11.50 am – 12.00 pm	230	Teaching Advanced Computing Technologies to Managers, Engineers and Other Professionals - <i>Ljiljana Brankovic, Stephan Chalup and Mark Wallis</i>
12.00 pm – 12.10 pm		
12.10 pm – 12.40 pm		Discussion

**Wednesday 13th December**

<b>Focus Session: W1S3, Barton Room, Chair: Smith and Mazzurco</b>		
<b>Theme: S3 - Integrating Humanitarianism in Engineering Education</b>		
Time	Paper number	Title and author
11.10 am – 11.20 am	64	The Rise of Humanitarian Engineering Education in Australasia - <i>Jeremy Smith, Nick Brown, Alison Stokley, Jennifer Turner, Bianca Anderson and Alanta Colley</i>
11.20 am – 11.30 am	78	Evaluating Humanitarian Engineering Education Initiatives: A Preliminary Literature Review - <i>Andrea Mazzurco and Homero Murzi</i>
11.30 am – 11.40 am	99	Making a difference: creating opportunities for undergraduate students to contribute to humanitarian engineering projects - <i>Fiona Johnson, Stephen Foster, Carla Frankel, Sam Johnson, Stephen Moore, Richard Stuetz and Jacqueline Thomas</i>
11.40 am – 11.50 pm	186	Lessons learned from the design and delivery a new major in Humanitarian Engineering - <i>Jacqueline Thomas, Petr Matous, Peter Cafe and Abbas El-Zein</i>
11.50 am – 12.00 pm		
12.00 pm – 12.10 pm		
12.10 pm – 12.40 pm		Discussion

**Wednesday 13th December**

<b>Parallel Session: W2A, Clarendon Room, Chair: D. Inglis</b>		
<b>Theme: C5 - Systems perspectives on engineering education</b>		
Time	Paper number	Title and author
1.40pm – 1.50 pm	39	Engineering Student Use of Facebook as a Social Media ‘Third Space’ - <i>Stuart Palmer and Tiffany Gunning</i>

<b>1.50pm – 2.00 pm</b>	98	Professors' Discourses on Why Underrepresentation Matters - <i>Kacey Beddoes</i>
<b>2.00pm – 2.10 pm</b>	233	Retention in the School of Engineering of the Universidad Pontificia Bolivariana Medellin-Colombia - <i>Bibiana Arango and Ana Maria Tamayo Mejia</i>
<b>2.10pm – 2.20 pm</b>	109	Does 'just in time' design thinking enhance student interest and appreciation of customer needs in the design of machine elements? - <i>Huaizhong Li and Sushila Chang</i>
<b>2.20pm – 2.30 pm</b>		
<b>2.30pm – 2.50 pm</b>		Discussion

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**Wednesday 13th December**

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**Focus Session: W2S3, Barton Room, Chair: Smith & Mazzurco**

**Theme: S3 - Integrating Humanitarianism in Engineering Education**

<b>Time</b>	<b>Paper number</b>	<b>Title and author</b>
<b>1.40pm – 1.50 pm</b>	171	Integrating Social Impact throughout an Engineering Curriculum - <i>Scott Daniel and Llewellyn Mann</i>
<b>1.50pm – 2.00 pm</b>	81	The role of a humanitarian focus in increasing gender diversity in engineering education - <i>Alison Stoakley, Nick Brown and Sarah Matthee</i>
<b>2.00pm – 2.10 pm</b>	162	Development of Global Competencies through Humanitarian Engineering Experiences - <i>Andrea Goncher and Josh Devitt</i>
<b>2.10pm – 2.20 pm</b>	196	What can be learned from the humanitarian successes and failures of Thomas Edison - <i>Peter O'Shea</i>
<b>2.20pm – 2.30 pm</b>		
<b>2.30pm – 2.50 pm</b>		Discussion