26th Annual Conference of the Australasian Association for Engineering Education (AAEE 2015)

CONFERENCE HANDBOOK

Geelong 6th-9th December

Deakin University CRICOS Provider Code:00113B

AAEE 2015

ACKNOWLEDGEMENT OF COUNTRY

We would like to acknowledge that this conference is being held on the traditional lands of the Wathaurong people. We wish to pay our respect to elders, both past and present.

CONTENTS

WELCOME FROM THE CHAIR

It is with great pleasure that Deakin University is hosting the 2015 AAEE annual conference on the Surf Coast.

With many challenges facing the sector it is a key time for the engineering education leaders and practitioners to come together and debate how best we can collectively rise to the opportunities ahead.

Innovation is the future for Australia and in order for this to be successful it is absolutely key that universities' graduate creative thinkers are able to astutely tackle the unknown jobs of the future.

The importance of STEM education cannot be understated. Perhaps more so now than ever before, a strategic and intelligent conversation about how this will be the central spine in all aspects of education from primary through post graduate is an absolute must.

The changing global environment also needs to be carefully considered and this has led to this year's conference theme of 'Blended Design and Project Based Learning.'

It is my desire that this conference is remembered in the future for being pivotal in influencing the whole of the sector to become more creative and understand more fully the important role it will play in the future prosperity of Australia.

Professor Guy Littlefair

General Chair

AAEE 2015 COMMITTEE

WELCOME FROM THE TECHNICAL CHAIR

On behalf of the Organising Committee, it is with great pleasure that I welcome you to the 2015 Annual Conference of the Australasian Association for Engineering Education (AAEE 2015).

This year we have received 205 submissions, with 112 papers accepted for publication and presentation. All full papers accepted for publication were blind peer-reviewed by at least three reviewers. I would like to thank all the reviewers for their valuable contributions and time. Without their support it would be impossible to ensure the quality of the AAEE 2015 papers.

We also received proposals for a number of workshops and master classes and after careful consideration we selected 12 workshops and master classes.

I would also like to thank all the Session Chairs for their willingness and support to chair the respective sessions. Without their cooperation, the sessions would not run as smoothly as desired.

The topics for the key note addresses have been carefully selected to align with the conference theme: 'Blended Design and Project Based Learning'.

I am sure that all participants will enjoy 'A PANEL OF DANGEROUS IDEAS' session. In this session, three prominent educational leaders and thinkers will share their insights about STEM, the digital environment, impact and risk with respect to education for today and into the future. Essentially it is a discussion on what matters most in education.

Please note the importance of all presenters keeping to time. Presentations have been allocated eight minutes' presentation time and five minutes' question time. We have also allocated time to have fruitful discussion at the end of each session.

I hope that the AAEE 2015 Conference will be a memorable event in which you will strengthen your networks and gain much inspiration and information on the direction and innovation of engineering education.

Sincerely,

Associate Professor Aman Oo

Technical Chair

AAEE 2015 COMMITTEE

ORGANISING COMMITTEE

General Chair	Professor Guy Littlefair
Technical Chair	Associate Professor Aman Than Oo
Workshops and Master Classes	Associate Professor Arun Patil, Associate Professor Tim Hilditch
Sponsorship	Dr Moshe Goldberg
Logistics	Dr Ben Horan, Craig McGill, Dr Ashwin Polishetty, Mehdi Seyedmahmoudian
Exhibits	Dr John Long
Proceedings	Dr Siva Chandrasekaran
Events and Social Program	Kate Hecimovic, Claire Faulmann, Cheryl Dixon
Website and Media	Samuel Thomas, Dr Paul Collins, Laura Usma
Professional Conference Organiser	Claire Heazlewood, Deakin Event Management Services

ABOUT AAEE

The Australasian Association for Engineering Education (a technical society of Engineers Australia) is a professional association of academics, support staff, postgraduate students, librarians, professional engineers, and employers who all have vested interests in fostering excellence and innovation in engineering education.

The general mission of AAEE is to improve the quality, relevance and performance of engineering education in Australasia. More specifically, the objectives of the Association are to:

- Quantify and make more visible within Australasia the increasing need for specific advanced engineering skills.
- Increase the participation rates of high school leavers in engineering education and training, especially of women and non-traditional sources of students.
- Promote the development and use of new teaching techniques and tools and promote measurement of teaching effectiveness.
- Provide assistance to the engineering educators, especially to the new members of the teaching staff.
- Promote the professional development of engineering educators.
- Make the Association the focal point for information on all aspects of engineering education within Australasia.
- Develop co-sponsorship of the Association by other engineering professional institutions and associations in Australasia.
- Develop global links with similarly minded organisations in other countries.

AAEE ANNUAL GENERAL MEETING

The 2015 Annual General Meeting will be held in the Rincon Room of the RACV conference venue on Tuesday 8th December, 2015 between 12.30pm and 1.30pm. Registered members of AAEE are entitled to vote.

CONFERENCE THEMES

The conference theme for the AAEE 2015 Conference is 'Blended Design and Project Based Learning: A future for Engineering Education'. The AAEE community is invited to enter into a dialogue about the future of Engineering Education within Design/Project-based and Blended Learning.

SUB-THEME 1: THE CORRECT USE OF TECHNOLOGY

As new technologies continually emerge and are introduced to the teaching and learning environment, it is vital that the most appropriate and relevant technologies are selected for effective delivery.

SUB-THEME 2: STUDENT-CENTRED LEARNING

In original usage, student-centred learning aims to develop learner autonomy and independence by putting responsibility for the learning path in the hands of students. Student-centred instruction focuses on skills and practices that enable lifelong learning and independent problem-solving.

SUB-THEME 3: LEARNING SPACES: PHYSICAL, VIRTUAL AND REMOTE

Physical learning space refers to a classroom or laboratory environment where students have face to face interaction. Virtual learning spaces refer to elive or online sessions with facilitators. Remote access refers to laboratory facilities which can be accessed remotely to perform some tasks such as experiments.

Mr Geoff Haynes — Day 1, 9am Great Ocean Ballroom

Geoff has held general management, manufacturing and marketing roles in a diverse range of industries. He is currently the Program Manager, Product Delivery and Support for NULKA and Evolved Sea Sparrow Missile at BAE Systems. Nulka is an Anti-Ship Missile Decoy system invented in Australia and exported to USA and Canada. The heart of the system is a hovering rocket. A demonstration of Australia's ingenuity!

He has also worked for Invetech, Pacific Dunlop, Gekko Systems, Dyesol and Champion Compressors. All of these businesses had a thirst for innovation. Geoff also spent time as an Engineering Office in the RAAF and continues as a Reserve Member. This year he has taken on the role of President, Engineers Australia, Victoria Division.

PRESENTATION

Geoff's presentation will focus on the importance of collaboration between the (engineering) profession and academia.

Mr Nino Ficca — Day 2, 8.50am Great Ocean Ballroom

Nino has over 30 years' experience in the energy industry, holding numerous senior management roles, including Managing Director of AusNet Transmission Group Pty Ltd (formerly SPI PowerNet Pty Ltd) since 2003.

Nino is a Director of Energy Networks Association Limited and a member of the National Energy Market Operations Committee. He is Chair of the Deakin University Engineering Advisory Board. Nino serves as a Member of the Australian Institute of Company Directors, and is a Fellow of Engineers Australia. He was also former Deputy Chairman and Director of the Energy Supply Association of Australia.

PRESENTATION:

Historically, the energy industry can be characterised as being relatively stable and predictable. However, the past decade has seen considerable change due to global economic pressures, the rise of renewable energy and associated technologies, including solar and battery technology, customer expectations and regulatory challenges. As such, the need for engineering graduates equipped with the skills to creatively and effectively work with companies as they transform is paramount. To foster and shape these graduates, it is critically important that industry and academic institutions work in partnership to attract the brightest and best engineering students.

In the context of the conference theme, partnering with industry must also extend to supporting the development of top class design/project-based courses. By leveraging strong industry and academic institutional partnerships, we will be securing Australia's energy industry now and into the future.

Professor Kerry Reid-Searl Day 2, 9.15am Great Ocean Ballroom

Professor Kerry Reid-Searl is the creator of Mask Ed (KRS Simulation) and Pup Ed (KRS Simulation). She is a Professor at Central Queensland University, Rockhampton Campus and has been involved in undergraduate nursing education for the past 23 years. Kerry is currently a practicing paediatric nurse. She has been the recipient of numerous teaching awards, including:

- CQU Vice Chancellor's Teaching Award in 2008 and 2010.
- Faculty of Science Engineering and Health teaching award in 2008 and 2010.
- Australian Learning and Teaching Citation for outstanding contribution to student learning in 2008 and 2012.
- Pearson/Australian Nurse Teacher Society - Nurse Teacher of the Year in 2009 and in 2012.
- Simulation Australia Achievement Award, 2013.

Kerry is also well published in international journals for her work on medication safety and simulation. Kerry is the principal author, as well as co-author of several nursing text books which have sold globally.

PRESENTATION:

Student centered learning with simulation as a focus: The journey of an innovative simulation teaching strategy that caters for learners beyond the walls of a classroom.

Almost eight years ago, in a classroom of first year nursing students at Central Queensland University a teaching innovation was created and become an idea considered worth sharing. The concept would be formalized and called Mask-Ed (KRS Simulation). This simulation technique involves the informed professional donning of realistic body silicone props and transforming into another person with a unique history. The specific history enables the newly created person to become the platform for learning and teaching. The idea of the expert hidden behind the prop is that they can direct and control the simulation experience without set scripts and can respond spontaneously in realistic ways to learners. Over a six year period this technique has been transferred to multiple disciplines and spread throughout the world. Despite the extensive spread and recognition, the journey of Mask-Ed has not been without challenges from which learning has occurred.

The aim of this paper is to present the journey of Mask-Ed. The intent is to empower educators in engineering to think about teaching innovation that may involve risk for daring to be different. However, the rewards of student engagement outweighs the risk. The following discussion paper will discuss the pedagogy around the technique, the transference to multiple disciplines across the world and the new opportunities in simulation that Mask-Ed has afforded. With the new opportunities, the paper will expose the pitfalls and warnings in this technique. The paper will close with a collection of words from participants including learners and academics involved in research around the technique.

Senior Lecturer, University of Sunderland, UK

David Baglee gained his PhD from the University of Sunderland in 2005. He is a Senior Lecturer at the University of Sunderland UK, a Visiting Professor of Operations and Maintenance at the University of Lulea, Sweden and a Visiting Associate Research Professor at the University of Maryland USA. His research interests include the use of advanced maintenance techniques and technologies to support advanced manufacturing practices within a range of industries. He has published extensively in international journals and presented at a large number of international conferences. He has managed several national and international funded projects within asset management for BP, Nissan, Fiat and Volvo.

David is a member of the International Society for Engineering Asset Management and the Institution of Engineering and Technology and is on the editorial board of several international journals. David is currently supervising six PhD students in a range of engineering topics.

PRESENTATION:
Knowledge exchange: Building a collaborative partnership.

The North East of England is seen as UK's industrial Powerhouse. The region is home to large international companies including Nissan, Hitachi Rail, Technip Umbilical and several pharmaceutical manufacturers, all which are showing investment and growth within advanced manufacturing and services directly in support of manufacturing.

It was recently announced that a new international advanced manufacturing park will be built next to Nissan. The proposed park would be in the region of 150 hectares, providing over 6000 jobs and will build on the region's advanced manufacturing heritage. To support growth and innovation in manufacturing in the region, Sunderland University has created a brand which is recognised by local companies as the key partner to support the development of skills, product design and development and new manufacturing initiatives.

David's presentation will highlight how the Institute for Automotive Manufacturing and Advanced Practice (AMAP), at the University of Sunderland, supports local companies by creating problem-solving solutions through strong industry and academic knowledge exchange partnerships. A case study will be presented to highlight the approach used by AMAP to generate interest from industry.

A PANEL OF DANGEROUS IDEAS

Day 3, 11am CADET

Educational leaders and thinkers will share their insights about STEM, the digital environment, impact and risk with respect to education for today and into the future. Essentially it is a discussion on what matters most in education.

Prof. Beverley Oliver

Deputy Vice-Chancellor (Education), Deakin University

Beverley Oliver is ALTC National Teaching Fellow 2011 and Deputy Vice-Chancellor (Education) at Deakin University. Through her National Teaching Fellowship (Assuring Graduate Capabilities), she is engaging curriculum leaders of undergraduate courses from any discipline to work with their colleagues, industry partners, students and graduates to:

- define course-wide levels of achievement in key capabilities, articulated through standards rubrics; and
- embed the rubrics into student portfolios and course review portfolios and share the challenges and opportunities of such approaches through scholarly publications.

Prof. Euan Lindsay

Foundation Professor of Engineering, Charles Sturt University

During his academic career, Euan has held senior roles as Program Leader and Senior Lecturer/Associate Professor within the Department of Mechanical Engineering at Curtin University, and Dean of the School of Engineering and Technology at Central Queensland University, before joining CSU as the Foundation Professor of Engineering. He has also been a visiting scholar at Virginia Tech. Euan is a member of a number of professional associations, and has co-authored two book chapters and written and co-authored numerous journal articles.

Prof. David Lowe

Associate Dean (Education), The University of Sydney

Professor David Lowe is Associate Dean (Education) and Professor of Software Engineering in the Faculty of Engineering and Information Technologies at The University of Sydney.

Before his current appointment, David was a Director of the Centre for Real-Time Information Networks (CRIN) - a designated research strength at the University of Technology Sydney, focused on blending embedded systems and telecommunications in addressing real-world problems. From 2002-2008 David was the Associate Dean (T&L) for the Faculty of Engineering, at UTS.

CONFERENCE STRUCTURE

REGISTRATION DESK

All delegates must be registered in order to attend the AAEE 2015 Conference. Located in the Great Ocean Ballroom Foyer, the Registration Desk will operate at the following times:

Pre-conference	**Sunday 6th December 2015**	**2.00 pm – 5.00 pm**
Day 1	**Monday 7th December 2015**	**8.00 am – 5.00 pm**
Day 2	**Tuesday 8th December 2015**	**8.00 am – 4.30 pm**
Day 3	**Wednesday 9th December 2015**	**Help desk at CADET**

ALTERATIONS TO THE PROGRAM

The Conference Committee reserves the right to make alterations to the program as circumstances dictate and will not accept responsibility for any errors, omissions or changes made to the program. Alterations will be displayed next to the Registration Desk.

CONFERENCE PROCEEDINGS

Abstracts and Full Papers are accessible in the ***'Order of Proceedings'*** which can be accessed from your conference USB stick and online: http://www.aaee2015.com.au/program

GUIDELINES FOR PARRALEL SESSIONS

All rooms will have an allocated Session Chair responsible for ensuring the smooth running of the session. It is important that all presenters keep to time. Presentations have been allocated eight minutes presentation time and five minutes question time. Session Chairs will assist presenters in keeping to time by providing timing notice.

WORKSHOPS

Workshops are 60-90 minutes in duration and often include the option of interactive components. Delegates may benefit from bringing their laptops or smart devices to workshop sessions.

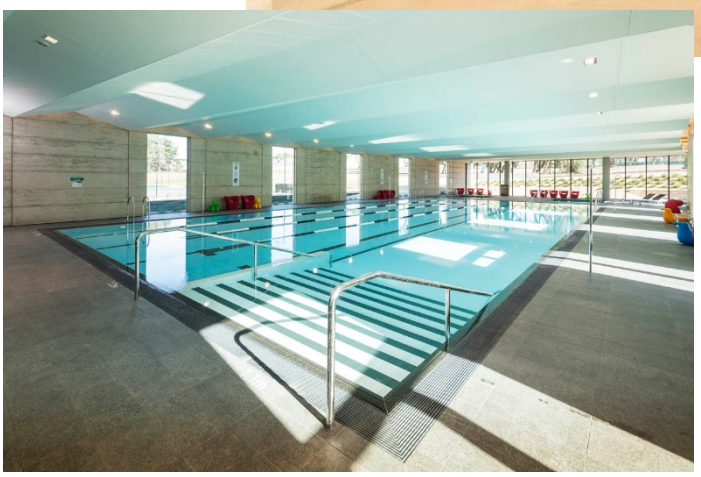
EXHIBITION BOOTH DISPLAY

The Great Ocean Ballroom Foyer area will hold our exhibitors and sponsors for the duration of the conference. Refreshments will be served in this area to facilitate networking between delegates and exhibitors. Please take advantage of this opportunity and make our sponsors feel welcome.

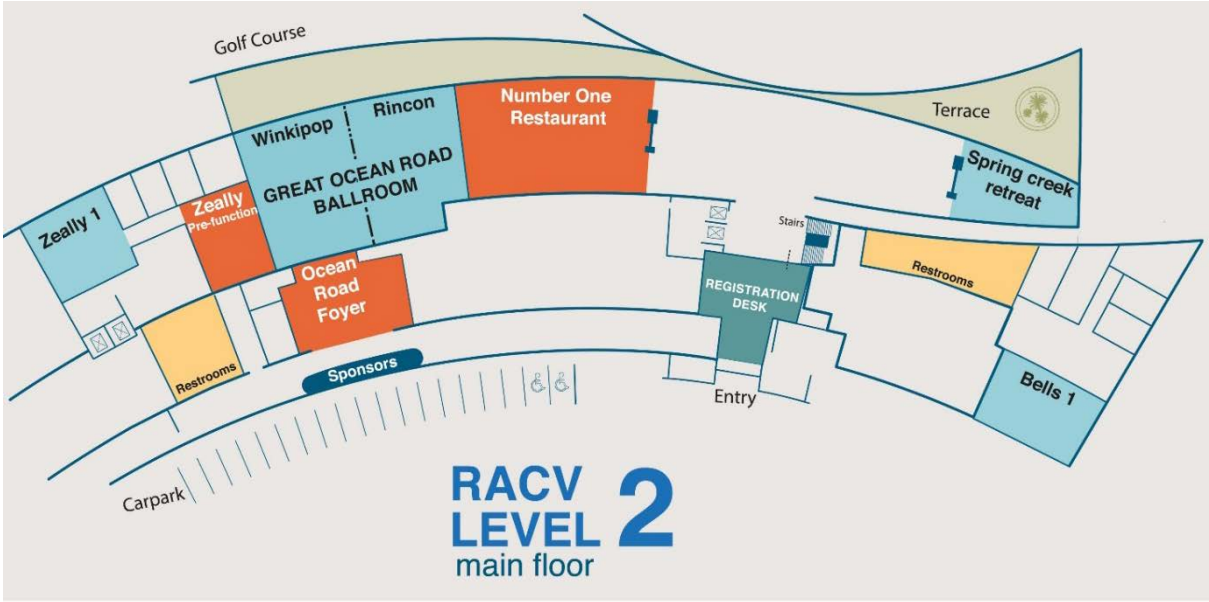
THE VENUE

The conference venue for AAEE 2015 is The RACV Torquay Resort, located on Victoria's picturesque South Coast. Situated on an expansive golf course between Torquay and Jan Juc beaches, the venue hosts remarkable ocean views and beach access.

The coastal town of Torquay is most familiar to tourists as the gateway to the Great Ocean Road. There are several levels of accommodation available in the Torquay area, from the first class luxurious facilities of the RACV Torquay Resort, which also boasts the advantage of being the conference venue, to the picturesque setting of the Foreshore Caravan Park, just a 10 minute stroll away.



CONFERENCE VENUE FLOORPLAN



AAEE 2015

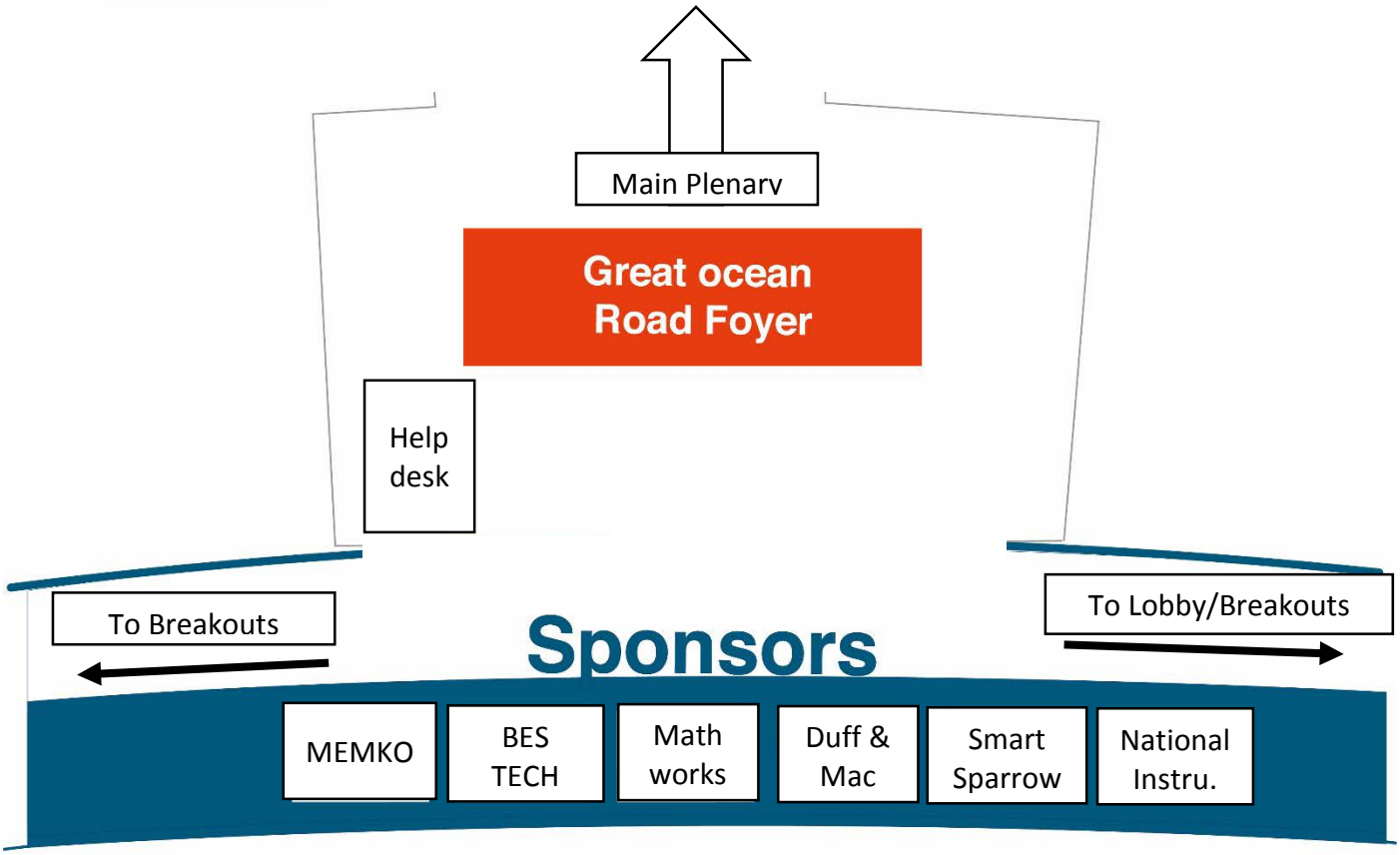
Keynotes, workshops and parallel sessions

Registration Desk

Food and Beverage lunch & coffee breaks

Sponsors

Torquay Resort



AAEE 2015 CONFERENCE PROGRAM IN BRIEF

SUNDAY 6TH DECEMBER 2015 – PRE-CONFERENCE

2.00 pm – 5.00 pm	Registration desk opens	Lobby and Great Ocean Ballroom Foyer
5.00 pm – 7.00 pm	Welcome Reception	White's Paddock

MONDAY 7TH DECEMBER 2015 – DAY ONE

8.00 am	Registration desk opens	Great Ocean Ballroom Foyer
9.00 am – 9.30 am	Official conference opening	Great Ocean Ballroom
9.40 am – 10.30 am	Keynote address: Mr Geoff Hayes	Great Ocean Ballroom
10.30 am – 10.50 am	Morning tea	Great Ocean Ballroom Foyer
10.50 am – 12.30 pm	Concurrent sessions and workshops	Various locations
12.30pm – 1.30 pm	Lunch	Great Ocean Ballroom Foyer
1.30 pm – 1.50 pm	Industry Sponsor Forum: Smart Sparrow	Winkipop Room
1.50 pm – 3.30 pm	Concurrent sessions and workshops	Various locations
3.30 pm – 3.50 pm	Afternoon tea	Great Ocean Ballroom Foyer
3.50 pm – 5.30 pm	Concurrent sessions and workshops	Various locations

TUESDAY 8TH DECEMBER 2015 – DAY TWO

8.00 am	Registration desk opens	Great Ocean Ballroom Foyer
8.45 am – 8.50 am	Conference welcome	Great Ocean Road Ballroom
8.50 am - 9.15 am	Industry plenary presentation: Mr Nino Ficca	Great Ocean Road Ballroom
9.15 am – 10.00 am	Keynote address: Prof. Kerry Reid-Searl	Great Ocean Road Ballroom
10.00 am – 10.20 am	Morning tea break	Great Ocean Ballroom Foyer
10.20 am – 12.00 pm	Concurrent sessions and workshops	Various locations
12.00 pm – 1.30 pm	Lunch	Great Ocean Ballroom Foyer
1.00 pm – 1.30pm	Annual General Meeting	Rincon Room
1.30 pm – 3.10 pm	Concurrent sessions and workshops	Various locations
3.10 pm – 3.30 pm	Afternoon tea break	Great Ocean Ballroom Foyer
3.30 pm – 4.30 pm	Workshops	Various locations
5.45 pm	Buses depart for Conference Dinner	
6.30 pm	Conference and Awards Dinner	The Pier, Geelong

WEDNESDAY 9TH DECEMBER 2015 – DAY THREE

8.45 am	Buses depart for CADET, Deakin University Waurn Ponds Campus	
9.30 am – 9.45 am	Conference welcome	KA lecture theatre
9.45 am – 10.30 am	Keynote address: Dr David Baglee	KA lecture theatre
10.30 am – 11.00 am	Morning tea break	CADET Foyer
11.00 am – 12.30 pm	Masterclasses, a Panel of Dangerous Ideas, and tours	Various locations
12.30 pm – 1.30 pm	Lunch	CADET Foyer
1.30 pm – 2.30 pm	Conference close and 2016 Handover	CADET lecture theatre
2.30 pm	Buses depart for railway stations and Torquay hotels	

SOCIAL ACTIVITIES AND EVENTS

WELCOME RECEPTION

Date: Sunday 6th December
Time: 5.00pm – 7.00pm
Venue: RACV Torquay Resort – White's Paddock
Fee: Entry to this event is included for Full Registration delegates, or $80 pp
Dress code: Casual

The AAEE 2015 Welcome Reception is a great opportunity to connect with your fellow delegates over drinks and canapés before the more formal conference proceedings begin the following day.

CONFERENCE AND AWARDS DINNER

Date: Tuesday 8th December 2015
Time: 6.30pm – late
Venue: The Pier Geelong
Cunningham Pier, 10 Western Beach Foreshore Rd, Geelong
Fee: Entry to this event is included for Full Registration delegates or $175 PP
Dress code: Smart

The AAEE 2015 Conference and Awards Dinner is a chance for delegates to relax and celebrate the conference by enjoying great food, drinks, music and company. The night will include music from 6 piece band *Like That*, who are guaranteed to create a lively atmosphere. A shuttle bus will run from The Sands and RACV hotels to convey guests to the dinner venue.

GENERAL INFORMATION

CONFERENCE DRESS CODE

Attire for the conference is 'smart/casual'. Dress code for the Welcome Reception is 'informal' and the Conference Dinner on Tuesday 8th December is 'smart'.

MOBILE PHONES AND SMART DEVICES

As a courtesy to other participants, please ensure that all mobile phones are turned off or on silent mode during all presentations.

WIRELESS INTERNET ACCESS

Wireless internet access is available for all delegates without the requirement of a password; please select the 'RACV guest' network.

CONFERENCE APP

The mobile app is available for iPhone and iPad through the App Store (SCHED) and Android through the Google Play app store (SCHED)

Download SCHED - It's easy and it's free and will allow you to:
+ Access floor plans, exhibitor details, session details, etc
+ Receive important real-time event communications
+ Connect with your colleagues and speakers
+ Ask questions and talk to the registration team

CLOAKROOM AND BAG STORE FACILITY

Delegates planning to depart the conference directly from CADET on Day 3, may wish to bring luggage with them on the bus. A luggage store will be available at CADET.

CATERING

Conference catering will be served in both the Great Ocean Ballroom Foyer, and the restaurant area. If you have advised the Conference staff of special dietary requirements prior to the commencement of the conference, please identify yourself to the waiting staff for assistance.

SMOKING RESTRICTIONS

The RACV Resort and Deakin University are both smoke-free environments.

EMERGENCY EVACUATION PROCEDURES

In the event of an emergency, delegates will be advised to take the nearest accessible emergency exit and congregate on the main car park at the front of the hotel.

TRAVEL

BY AIR

AVALON AIRPORT is a 20 minute drive from the RACV Torquay. Servicing domestic routes from across Australia, the airport also offers a convenient shuttle bus service, Murrell. For information and bookings please visit http://www.murrell.com.au/ or (ph) 03 5278 8788.

MELBOURNE AIRPORT (MEL-Tullamarine) is 88km from the RACV Torquay and journey time is just over an hour. From **Tullamarine Airport** you can use the Gull Airport Service to travel direct to Geelong. Information and bookings can be found on their website: www.gull.com.au. The drop-off point for this service (closest to the RACV Torquay Resort) is **Geelong Railway Station**.

On Sunday 6th December, a Conference bus will operate to transfer delegates directly to Torquay – please see timetable below. A taxi rank is also available.

BY RAIL

V/Line offers a regular train service to Geelong daily, however it is not convenient for visitors arriving by plane (for plane arrivals, please see Shuttle bus information). The nearest train station to the conference venue is **Waurn Ponds**, with **Geelong** the next suitable station. From these stations, you can take the Conference Shuttle Bus (see below), or a Taxi. Train timetable information can be found at: www.vline.com.au or (ph) +61 3 9662 2505.

IMPORTANT INFORMATION FOR TRAIN TRAVEL: MYKI

In Victoria, Myki cards are used on all public transport (except Air Transfers). You cannot purchase these cards on buses, trains or trams. They must be purchased at a premium train station, 7-Eleven store or selected retailer. Purchasing a card alone will cost $6, and additional money must be loaded onto the card in order to travel. For more information, please visit the website: http://ptv.vic.gov.au/tickets/myki/.

BY ROAD

The RACV Torquay is a 75 minute drive from the Melbourne CBD. Delegates wishing to drive to the RACV Torquay should use the address: **1 Great Ocean Rd, Torquay, Victoria, 3228** for their GPS, or can use the interactive map to plan the journey. The conference venue has ample free parking for delegates.

TAXI

To arrange a taxi, please contact Geelong Taxi Network directly on 131 008, download the free iPhone booking app "Geelong Taxi" or visit their website at: http://geelongtaxis.com.au/home/.

CONFERENCE SHUTTLE BUS SERVICE

The AAEE 2015 Conference shuttle buses will operate at specific times (to coordinate with Gull Bus arrivals) to facilitate delegate transport to and from the conference venue. Please refer to the table below:

Sunday 6th Dec Delegates arriving:	Departs:	Departs:	Departs:	Departs:	Departs:
Geelong train Station	12 noon	1.25pm	3pm	4.20pm	5.50pm
Waurn Ponds train station	12.30pm	1.45pm	3.30pm	4.40pm	
The Sands	12.50pm	2pm	3.45pm	5pm	6.10pm
RACV	1pm	2.15pm	4pm	5.10pm	6.20pm
Tuesday 8th Dec Conference Awards Dinner	Departs:				
RACV	5.45pm				
The Sands	5.55pm				
The Pier	8.30pm				
The Pier return					
Rolling from	10.00pm	11.00pm			
Wednesday 9th Dec: CADET Excursion	Departs:				
RACV	8.45am				
The Sands	8.55am				
CADET Waurn Ponds	9.25am				
CADET Return:	3 – 4 buses				
CADET Waurn Ponds	2.30pm	2.30pm			
Geelong Train Station	3pm	-			
RACV/The Sands	-	3pm			

There will also be an ad-hoc shuttle bus service operating Monday and Tuesday for the start and finish of the conference between The Sands resort and RACV. Please let the Registration Desk know if you wish to use this service.

LOCAL SERVICES

SHOPPING CENTRE FACILITIES, BANKS AND ATMS

In the heart of Torquay's main shopping strip (24 minute walk/4 minute drive), there are the following banks/ATMs: Commonwealth Bank of Australia (ATM and branch), St George Bank (ATM), NAB (ATM), Bendigo Bank (ATM) and Westpac (ATM and branch) and a variety of grocery stores such as Coles, Woolworths and IGA.

Upon exiting the conference venue, turn right onto Great Ocean Road and continue for approximately 500m until you reach a roundabout. Take the second exit, then continue for 700m. Turn right onto Boston Road, then continue for 600m until you reach Pearl Street. Turn left onto Pearl Street, then the next right onto Gilbert Street, and you have reached Torquay's main shopping strip.

The nearest Cash Card ATM from the conference venue is a 12 minute walk /1 minute drive: Upon exiting the conference venue, turn right onto Great Ocean Road and continue for approximately 500m. Take the third right onto Bell Street and continue for 180m. Continue straight through the roundabout for 200m until you reach the ATM on your right.

CHEMISTS AND PHARMACIES

The nearest pharmacy is a 22 minute walk/3 minute drive from the conference venue. Upon exiting the conference venue, turn right onto the Great Ocean Road and continue for approximately 500m until you reach a roundabout. Take the second exit then continue for 1.3 kms until you arrive at **Surfcoast Pharmacy** on your right.

INTERNATIONAL VISITORS GENERAL INFORMATION

Australia's calling code is #61.

The electrical current in Australia is 220–240 volts, AC 50Hz. Please be aware that the Australian three-pin power outlet is different from some other countries and therefore an adaptor may be required.

DINING

The RACV Torquay is renowned for its excellent cuisine and guests can book a table in the restaurant at the hotel's reception. If you wish to explore the area, a great resource to use is the Australian Good Food Guide, which contains many different cuisine options to choose from (http://www.agfg.com.au/). Zomato is another resource you can use to locate restaurants and choose from a variety of cuisines (https://www.zomato.com/).

Some suggested restaurants in Torquay are:

Scorched
Casual surroundings with Middle Eastern dishes enjoyed best when shared.
17 The Esplanade, Torquay
Phone: 03 5261 6142
http://www.scorched.com.au/index.php

Growlers
Relaxed dining featuring modern Australian cuisine.
23 The Esplanade, Torquay
Phone: 03 5264 8455
http://growlers.com.au/

Fishos Torquay
Fresh local seafood in a cozy beachfront setting.
36 The Esplanade, Torquay
Phone: 0406 640 561
https://www.facebook.com/fishostorquay

Bomboras Torquay
Offering a variety of signature dishes alongside gourmet pizza options in a restaurant full of surfing culture.
108 Surf Coast Hwy, Torquay
Phone: 03 5264 7881
http://www.bomboras.com.au/

SPONSOR RECOGNITION

The AAEE 2015 Conference would not be possible without the wonderful support of sponsors. The Conference Committee would like to thank each of these organisations for their generous contribution:

Industry Workshop Sponsor – See their session on Day 1 at 13.30pm

SMART SPARROW

Lunch Sponsor Day 1

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www.duffmac.com.au

AAEE 2015 Full Conference Program

Sunday 6th December 2015

Time		
2:00	Registration Desk Opens - Great Ocean Rd Foyer	
	White's Paddock and Outdoor Area	
17:00	Welcome Reception	
19:00	Close of Welcome Reception	

Monday 7th December 2015

Time		
8:00	Registration Desk Opens - Great Ocean Ballroom Foyer	
	Great Ocean Ballroom	
9:00	Introduction by Associate Professor Aman Oo and Welcome to Country	
9:10	Opening by Professor Beverley Oliver Deputy Vice-Chancellor (Education), Deakin University	
9:30	Welcome by Conference Chair: Professor Guy Littlefair	
9:40	Associate Professor Aman Oo Introduces 'Infogram'	
9:50	Keynote Address by Mr Geoff Hayes, Chaired by Professor David Lowe	
10:30	Morning Tea - Foyer	

	Rincon Room (140)	Winkipop Room (150)	Zeally Room 1 (96)	Bells Room 1 (72)	Bells Retreat	Games Room
	1A. Student Centred Learning	1B. The Appropriate Use of the Correct Technology	1C. Learning Spaces: Physical, Virtual and Remote	1D. Issues and Challenges in Engineering Education	1E.	1F.
	Chair: Professor Alex Stojcevski	Chair: Associate Professor Stuart Palmer	Chair: Associate Professor Mohammad G. Rasul	Chair: Associate Professor Lydia Kavanagh		
10:50	Design of Final Year Capstone Project Course to Maximise Student Learning Experience and Outcomes ***S. Gunalan***	I'll Believe it When I See it ***N. Haritos***	Effective Technology for a Calculus Bridge Program: Bringing Education Home ***S. Nite***	Design for Dissemination - Development of a Humanitarian Engineering Course for Curriculum Sharing ***J. Smith***		**Workshop:** Building Collaborations Through Storytelling while Revising Mechanics of Materials Curriculum for Implementation ***G. Panther***
	Filling in Cultural Awareness Gaps for International Senior Capstone Projects ***P. Sanger***	Engaging First Year Engineering Design Students with 3D Printers - A Pilot Trial and Evaluation ***D. Hobbs***	Laboratories Transformation ***G. Rasmussen***	Lessons Learned from Tangible Curriculum Week ***E. Lindsay***		
	Collaborative Learning Approach to Introduce Computational Fluid Dynamics ***E. Sauret***	Transforming the Communications Engineering Laboratory Education through Remotely Accessible Software Radio Platform ***S. Rajakaruna***	Student Project Development Based on Industry Oriented Learning: Design of a Sustainable Standalone House ***T. Qi***	A Study of the Understanding and Attitudes of the Engineering Undergraduate Toward Plagiarism: Can Attitudes be Modified by In-class Instruction? ***C. Schaller***		
	Introduction to Needs Analysis for Increasing First Year Engineering Students' Ability in Conceptual Design ***A. Drain***	Teaching for Understanding in Engineering Mathematics ***N. Shepstone***	Novel Design of a Renewable Energy Remote Laboratory ***L. Lyons***	Humanitarian Engineering - What Does it All Mean? ***N. Brown***		
	Teaching Engineering Research Skills in a Flipped Classroom ***E. Mitchell***	Renewable Energy in the Digital Domain: Authentic Laboratory Learning Activities and Assessment ***S. Rajakaruna***	Improving Student Satisfaction Improves Learning – A Case Study in the Scholarship of Teaching ***N. Mandal***	A National Sustainable Engineering Challenge: Improving Engineering Curricula Across Australia ***M. Rosano***		
	Effectiveness of Placement and Non-placement Work Integrated Learning in Developing Students' Perceived Sense of Employability ***M. Jollands***	The Use of Auto-tracking Camera in iLectures for Effective Learning ***F. Anwar***	Relationship Between Learning in the Engineering Laboratory and Student Evaluations ***S. Nikolic***	A Modified Gardner's Multiple Intelligence Model to Address Employability Skills of Vocational and Engineering Students ***M. Aftabuzzaman***		
12:10	Q & A	Q & A	Q & A	Q & A		

12:30	Lunch - Foyer					
	Rincon Room (140)	**Winkipop Room (150)**	**Zeally Room 1 (96)**	**Bells Room 1 (72)**	**Bells Retreat**	**Games Room**
13:30		**Industry Sponsor Forum: Smart Sparrow**				
	2A. Student Centred Learning	**2B. The Appropriate Use of the Correct Technology**	**2C. Learning spaces: Physical, Virtual and Remote**	**2D. Issues and Challenges in Engineering Education**	**2E.**	**2F.**
	Chair: Dr Prue Howard	**Chair: Dr Ben Horan**	**Chair: Dr Liza O'Moore**	**Chair: Dr Surendra Shrestha**		
13:50	Development of 'Superpracs' that Appeal to Both Male and Female High School Students ***R. Gravina***	Development and Implementation of a Flipped-Classroom Delivery in Engineering Computing and Analysis for First Year Engineering Students ***D. Hastie***	Looking Through a Glass Onion : Assessing the Affordances of an Augmented Reality Experimental Learning (AuREL) Proposal for Engineering Student Online Experimentation ***G. Banky***	Using Reflective Writing and Textual Explanations to Evaluate Students' Conceptual Knowledge ***A. Goncher***		
	A Multidisciplinary Project to Enhance Workplace Readiness ***T. Harris***	Engineering Gen Y: An Integrated Approach ***N. Tse***	Educator Preferences Regarding the Types of Information Desired to Support Decision Making Regarding Adoption of Remotely-Accessible Engineering Instructional Laboratories ***S. Tuttle***	A Research Agenda for Design-based Learning in Engineering Education ***S. Palmer***		
	Implementation of Blended Learning Strategies in a Core Civil Engineering Subject – an Experience ***S. Shrestha***	A trial flipped classroom implementation for first-year engineering ***G. Buskes***	Design of Learning Spaces for Engineering Education ***P. Collins***	Reconceptualising Engineering Research as Boyer's Four Scholarships ***L. Mann***	**Workshop:** Toward a Community-Informed Framework Characterizing the Impact of Engineering Education R&D ***J.London, M. Borrego and A.Gardner***	**Workshop:** Understanding Gender in Teamwork to Increase the Numbers of Women in Engineering ***K.Beddoes and G. Panther***
	How Do We Instill Experience into Young Engineers? The Use of Posters as a Learning Tool in Engineering Project Management ***F. Hui***	Effects of Video Tutorials on First Year Engineering Student's Engagement and Learning Performance ***M. Belkina***	A Comparison and Evaluation of Aeronautical Engineering Learning Outcomes Using an Airborne Flight Laboratory and a Flight Simulator Laboratory ***R. Lewis***	Reflections on Developing and Implementing an Advanced Engineering Project Management Course ***D. Thorpe***		
	Developing a National Approach to eportfolios in Engineering and ICT ***J. Lawson***	Comprehensive Innovation and Practice in Teaching and Learning for the Kind of Signal Courses ***P. Han***	Guidelines for Learning and Teaching of Final year Engineering Projects at AQF8 Learning Outcomes ***M. Rasul***	Can Simple Ideation Techniques Influence Idea Generation: Comparing Results from Australia, Czech Republic, Finland and Russian Federation ***I. Belski***		
	Outside Interests, the Engineering Student and Teamwork ***C. Schaller***	From Work Placement to Employability: A Whole-of-Course Framework ***B. Senadji***	"I could replay the videos": Evaluating the Effectiveness of Instructional Videos in a Threshold Concept-based Flipped Classroom in Electronic Engineering ***J. Scott***	Mapping Quantitative Skills (QS) in First-year Engineering for On Campus and Distance Students ***J. Wilkes***		
15:10	**Q & A**	**Q & A**	**Q & A**	**Q & A**		

15:30	Afternoon Tea - Foyer					
	Rincon Room (140)	**Winkipop Room (150)**	**Zeally Room 1 (70)**	**Bells Room 1 (70)**	**Bells Retreat (30)**	**Games Room (45)**
	3A. Student Centred Learning	**3B. The Appropriate Use of the Correct Technology**	**3C. Student Centred Learning**	**3D. Issues and Challenges in Engineering Education**	**3E.**	**3F.**
	Chair: Associate Professor Tim Wilkinson	**Chair: Associate Professor Laurence Pole**	**Chair: Dr Prue Howard**	**Chair: Dr Llew Mann**		
15:50	A Framework for Managing Learning Teams in Engineering Units ***K. Nepal*** Providing Automated Formative Feedback in an online learning enrolment ***J. But*** Tracing software learning and application from formal into informal workplace learning of CAD software ***R. Torrens*** Residential Schools in a First-Year Undergraduate Engineering Programme ***J. Long*** Industrial Engagement for Ensuring Engineering Education Standards in Developing Countries ***M. Rasul*** A Principles-Evaluate-Discuss Model for Teaching Journal and Conference Paper Writing Skills to Postgraduate Research Students **S. Westra** Creative Problem Based Learning Projects for Promoting STEM ***J. Shi***	A Comparison of Web and Paper Based Approaches for Idea Generation ***A. Valentine*** Calculus for Kids: Engaging Primary School Students in Engineering Mathematics ***S. Nitschke*** Using Classroom Response Systems to Motivate Students and Improve their Learning in a Flipped Classroom Environment ***T. Lucke*** Rapid Feedback for Oral Presentations ***D. Shallcross*** Collaborative Design Using a Digital Platform in Engineering Design Course ***T. Pang***	Where (or what) to Next for the High School 'PBL' STEM graduate? ***A. Hendry*** Enhancing Students' Learning Experience Using Peer Instruction, Tutorial-Lecture Swapping and Improved Assessment/Feedback Techniques ***F. Hussain*** Shifting the Focus. Incorporating Knowledge about Aboriginal Engineering into Main stream Content **E. Leigh** Categorising Conceptual Assessments under the Framework of Bloom's Taxonomy ***W. Boles*** Student Experiences of their Academic Transition from TAFE to Higher Education in Engineering ***L. Alao*** Does Student Engagement Improve when 1:1 Device Technologies are Used and Adapted to Cater for Individual Learning Styles during Online Delivery of Engineering Courses? ***A. Firipis***	Perspectives of Stakeholders on Engineering Graduate Employability ***M. Jollands*** Accelerating Higher Degree by Research (HDR) Mechanical Engineers' academic writing skills: an analysis of the development and outcomes of a novel visual-spatial, physical-tactile, integrated English language learning intervention, drawing on Engineering ***A. Hunter*** Comparison of Students' Learning Style in Engineering Mechanics and Fluid Mechanics courses ***S. Shaeri*** Helping Academics Manage Students with "invisible disabilities" ***L. O'Moore*** The Role of Storytelling in the Co-development of Mechanics Course Materials ***G. Panther*** Student Experiences of Threshold Capability Development in an Engineering Unit with Intensive Mode ***S. Male***	**Workshop:** Benchmarking Graduate Quantitative Skills in Engineering ***J.Wilkes***	**Workshop:** ePortfolio Basics - How to Construct a Template for a Project-based Assessment Portfolio using PebblePad ***Y.Tolentino***
17:10	**Q & A**	**Q & A**	**Q & A**	**Q & A**		
17:30	**Close of Monday Sessions**					

Time	Tuesday 8th December 2015					
8:00	Registration Desk Opens - Great Ocean Rd Foyer					
	Great Ocean Ballroom					
8:45	Welcome and housekeeping					
8:50	Industry plenary presentation by Mr Nino Ficca, CEO Ausnet Services					
9:15	Keynote address from Professor Kerry Reid-Searl Chair: Associate Professor Margaret Jollands					
10:00	Morning Tea - Foyer					
	Rincon Room (140)	Winkipop Room (150)	Zeally Room 1 (96)	Bells Room 1 (72)	Bells Retreat	Games Room
	4A. Student Centered Learning	4B. The appropriate use of the correct technology	4C. Student centred Learning	4D. Issues and Challenges in Engineering Education	4E.	4F.
	Chair: Dr George Banky	Chair: Associate Professor Michele Rosano	Chair: Associate Professor Matthew Joordens	Chair: Dr Tim Aubrey		
10:20	Using a Contextualised English Support Programme to assist International Engineering Students ***S. Chen*** Implementation of an Embedded Project-Based Learning Approach in an Undergraduate Heat Transfer Course ***P. Woodfield*** Implementing Engagement-based Teaching in Engineering Research Courses ***F. Maclean*** The CSU Engineering Model ***J. Morgan*** Collabor8: (Re-)Engaging Female Secondary Cohorts in STEM Subjects ***B. Holland*** Making the Change to PBL: what it Takes ***W. Wan Muhd Zin***	Project-Based Learning (PBL) in Standard and Distant Mode Postgraduate Engineering Management Course ***H. Al-Kilidar*** An Exploration of the Current use of Tabletpcs within the School of Engineering and Technology at CQUniversity ***A. Dekkers*** Effectiveness of using a Classroom Response System in Enhancing Classroom Interactivity and Students' Learning ***J. Hossain*** High Definition Multi-View Video Guidance for Self-Directed Learning and More Effective Engineering Laboratories ***R. Eaton***	Students' Approaches to Learning through self- and peer Assessments ***R. Fulcher*** Distributed Constructionism in Engineering Tutorials ***C. Browne*** A Systematic Assessment Strategy for Grading Student Answers ***S. Sathiakumar*** Relationships between Civil Engineering Students' Learning Approaches and their Perception of Curriculum and Teaching Quality ***K. Nepal*** Gap Analysis in Concept Understanding ***R. Gorthi*** Students Perspectives on Design Based Learning in Undergraduate Engineering Studies ***S. Chandrasekaran***	Text Analytics Visualisation of Course Experience Questionnaire Student Comment Data in Science and Technology ***S. Palmer*** (How) Do Professors Think About Gender When Designing PBL Experiences? ***G. Panther*** Why are Students Choosing STEM and when do they Make their Choice? ***L. Dawes*** A Template for Change - Demonstrating how Reforms in Engineering Education can be Delivered Successfully ***K. Robinson*** Success at Tertiary Level – Analysis of Factors that Impact on Improved Performance ***T. Wilkinson***	**Workshop:** Student Centred Learning Approaches to Creating Humanitarian Engineers ***N. Brown, J. Price, J. O'Shea, J. Smith and A. Stoakley***	**Workshop:** Reflective Practice in 3 Domains ***J. Prpic***
11:40	Q & A	Q & A	Q & A	Q & A		

12:00	Lunch - Foyer					
	Rincon Room (140)	**Winkipop Room (150)**	**Zeally Room 1 (96)**	**Bells Room 1 (72)**	**Bells Retreat**	**Games Room**
12:30	**AGM**					
	5A. Student Centred Learning	**5B. The Appropriate use of the Correct Technology**	**5C. Student Centred Learning**	**5D. Issues and Challenges in Engineering Education**	**5E.**	**5F.**
	Chair: Dr Tim Aubrey	**Chair: Chaired by Professor David Lowe**	**Chair: Dr Ben Horan**	**Chair: Dr Llew Mann**		
13:30	First-Year Student Engineers Experience Authentic Practice with Industry Engagement ***S. Aminossadati*** Debate Activity as an Effective Interactive Learning Approach for Civil Engineering Students ***L. Ho*** Volunteering for Success: Strategic Design and Implementation of the Icarus Program ***J. Gattas*** Abstract Concepts Made Real: A Pilot Study examining Pedagogical Approaches in Thermodynamics Tutorials ***B. Capra*** TRIZ Evolutionary Approach in Engineering Education ***V. Berdonosov*** Quick Start to First Year Student Motivation and Better Employability **P. Radcliffe**	Videoconferencing for teaching and learning using highly interactive pedagogy ***G. Moore*** Factors Affecting Deep Learning of Engineering Students ***A. Karim*** 2D versus 3D Collaborative Online Spaces for Student Team Meetings: Comparing a Web Conferencing Environment and a Video-Augmented Virtual World ***S. Nikolic***	Learning Beyond the Curriculum: Academics' Perspectives on ICT Student Employability skills ***M. Jollands*** Student Perspectives on Supporting Portfolio Assessment in Project-based Learning ***B. Taylor*** Australian Primary School Students' Perceptions of Engineering ***D. Symons*** The Case Study of Failure Analysis of Engineering Components: Effects on Students' Employable Skills, Conceptual Understanding, and Perception ***E. Olakanmi*** The Pedagogical Content Knowledge Involved in Teaching for Student-centred Learning in Engineering ***H. Jolly***	Improving Links between Mathematics and Engineering: Digging Beneath the Topics ***S. Male*** Educational Utilities of Virtual Laboratories for Engineering Education ***A. Altalbe*** Research Methodology employed in PBL Facilitation Studies ***W. Wan Muhd Zin*** The Beginning of a Scholarly Conversation on Impact in Engineering Education: A Synthesis of the Three Major Difficulties Associated with Studying Research Impact ***J. London*** "Improving Graduate Attributes through Project Based Learing" ***A. Stojcevski***	**Workshop:** Shifting Perspectives - Changing direction. Integrating Aboriginal Engineering into Modern Engineering Curricula ***E.Leigh***	**Workshop**: PPIR: Introducing Professional Performance to Engineering Students ***J. Nurse and A. Brinson***
14:50	**Q & A**	**Q & A**	**Q & A**	**Q & A**		
15:10	**Afternoon Tea - Foyer**					
	Rincon Room (140)	**Winkipop Room (150)**	**Zeally Room 1 (96)**	**Bells Room 1 (72)**	**Bells Retreat**	**Games Room**
	6A.	**6B.**	**6C.**	**6D.**	**6E.**	**6F.**
15:30			**Workshop:** Exploring Questions of Sequence in Engineering Curricula ***H. Tilstra and R. Hadcraft***	**Workshop:** RALfie – Remote Access Laboratories for Fun, Innovation and Education ***A. Kist***	**Workshop:** How to Prevent and Mitigate Gender Inequity in Engineering Disciplines ***P. Ekambaram***	**Workshop:** Engineering Pathways for Regional Australia ***M. Symes and P. Doe***
16:30	**Free time**					
17:45	**Buses Depart for Conference Dinner**					
18:30	**Conference Dinner - The Pier Geelong**					
22:30	**Buses Return to hotels**					
	Close of Tuesday					

Time	Wednesday 9th December 2015					
8:45	Buses Depart for CADET					
9:00	Registration Desk Opens - CADET Foyer					
	KA3.403 Lecture Theatre (200)					
9:30	Welcome and housekeeping					
9:35	Launch AAEE website and AJEE					
9:45	Keynote address by Dr David Baglee Chair: Associate Professor Fae Martin					
10:30	Morning Tea - CADET Foyer				HIGH VOLTAGE LAB TOUR	VIRTUAL REALITY LAB TOUR
	CADET: KE2.102 (36)	CADET: KE2.202 (36)	CADET Lecture Theatre (147)			
11:00	**1. Masterclass** Flipped Classrooms ***L. Kavanagh and C. Reidsema***	**2. Masterclass** CDIO in the Australian and New Zealand Context ***D. Campbell***	**A Panel of Dangerous Ideas** Educational leaders and thinkers will share their insights about STEM, the digital environment, impact and risk with respect to education for today and into the future. Essentially a discussion on what matters most in education. ***• Prof. Beverley Oliver • Prof. Euan Lindsay • Prof. David Lowe***		The CADET HV Laboratory is one the largest HV facilities in the southern hemisphere. Designed primarily for research, teaching and training industry high voltage engineers and technicians, it is also designed to attract the younger generation to science & engineering, demonstrating how electricity is generated and transmitted.	The CADET VR Laboratory is an advanced research facility focused on highly immersive large-scale virtual reality (VR). The laboratory is working with a number of partners on research projects focused on lowering the barrier to VR and solving real world challenges.
12:30			Lunch - Foyer		TOURS: ONGOING	TOURS: ONGOING
	CADET Lecture Theatre (147)					
13:30	Closing Ceremony Handover to 2016					
14:30	Buses return to Torquay hotels/Geelong Train Station					
15:00	Free time/Golf					
	Close of Wednesday sessions					
	Close of final sessions					
	CONFERENCE FINISHED					

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