This editorial is in celebration of our graduates in the recent mid-year July graduation ceremony. We have two graduation ceremonies each year, with the mid-year ceremony being the smaller of the two but still very significant for both staff and students. For our staff it is the crowning achievement of a University - to see our undergraduate students successfully complete their education and become graduate engineers on the threshold of their professional engineering careers, and to be proud of our Masters and Research students completing their postgraduate degrees. And for all our students it is a fitting reward for all their hard work, determination and talent.

Graduation ceremonies start with a procession of academics which, in the case of ceremonies at University of Wollongong, leave our Administration building and walk past the library and duck pond to the Union Hall, through the audience and onto the stage. The academics wear academic dress, consisting of robes, colours and curious hats. This dress is similar to that originally worn by monks many centuries ago in the world’s earliest centres of learning and is symbolic of the history and traditions of human scholarship.

The procession for this ceremony was not quite as usual this year, since the day came with driving heavy rain which would have made the otherwise colourful academic dress rather drab and damp, perhaps with the colours slowly dissolving and running into each other in a rather undignified fashion. Lots of cars

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Brad Stappenbelt has been working on an innovative Teaching and Learning Project via the UOW Faculty Scholar program. Brad will complete his project over the next 18 months, titled, “Constructive Alignment in Teamwork Teaching and Assessment Practices in Engineering”. Brad has provided an outline of his project below:

In 2007, a curriculum map of the development of student generic professional skills across three competency levels, called the Engineering graduate capabilities continuum, was produced. This map describes the alignment of the stages of development of key competencies with UOW and Engineering faculty graduate capabilities and the Engineers Australia accreditation and graduate attribute requirements. Despite the development of this detailed curriculum map we are still faced with the challenge that several key generic graduate capabilities are not sufficiently embedded in the curriculum. Consequently, students tend not to perceive these as important and do not on the whole understand these to be intrinsic to the engineering educational process. What appears to be missing at present is constructive alignment of the learning outcomes as stated in the Engineering graduate capabilities continuum with the teaching and assessment practices in individual subjects.

Due to the nature of engineering work, the generic professional skills associated with teamwork are an area of particular interest in engineering education. Group work projects in engineering and other disciplines are becoming a more common part of the undergraduate learning experience in higher education and there is general consensus that this group work is good student preparation for working in industry. The act of performing a task in a group however does not ensure that teamwork skills are learnt or developed by students. It is this distinction and the lack of preparedness to provide the essential requirements and support for effective group learning that leads to student experiences of group work that fall far below their expectations.

At present, group work is generally not perceived favourably by our students. The primary concerns cited, relate to the inequity in contribution by group members with subsequent problems in group function and performance. Such problems are fostered by a learning environment that focuses primarily on the deliverables of the group assignments at the expense of the teamwork process itself. Currently we are generally providing group work assignments to students without adequate teamwork instruction and correction. More significantly however, we are effectively assigning little importance to the
were hastily borrowed, plus some of the Faculty of Science’s minibuses, to ferry the stage party to the Union Hall through the heavy rain. Everyone eventually arrived dry, if a little late.

The name of every individual student is read out by the Dean as he or she walks carefully up steps onto the stage and across to the centre while the audience claps to recognise the student’s achievement. The Chancellor of the University then hands over the degree transcript, says a few congratulatory words, and the graduate descends back to the audience, pleased to have the degree, and not to have slipped, stumbled or fallen over during what can seem like a very long journey to a nervous graduand.

In this mid year’s ceremony we awarded 48 first degree graduates in engineering and physics, 58 postgraduate course work degrees, such as the Master of Engineering Practice, the Master of Engineering Management, Master of Professional Engineering, Master of Medical Radiation Physics and Master of Science. There are also specialised degrees such as the Master of Engineering Asset Management and the Graduate Certificate in Rolling Stock Engineering. Finally the ceremony awards Doctorates to research students who have made a major original contribution to knowledge. PhD’s are presented to the Chancellor by their Head of School. In this ceremony 17 PhD’s were awarded to Faculty of Engineering students from all three Schools. Topics cover a remarkably wide range such as surface coatings for steel, microwave treatment of minerals, Quality Management in developing countries such as Libya, the improvement of the performance of batteries, superconductors, various areas of radiation, electronics, and the design of foundations for high speed trains.

Finally there is a guest speaker, usually an eminent leader from Government or Industry, who discusses experiences and lessons learnt since graduation. The ceremony concludes with a vote of thanks from one of our new graduates. Then the audience, mostly consisting of proud family and friends, plus graduates and academic staff, all have an informal morning tea, biscuits, conversations and photos to remember, enjoy and celebrate one of the most significant days in the lives of both our students and our staff.

teamwork skills involved by not including these explicitly in the assessment of the work.

As Paul Ramsden expressed well in his book ‘Learning to Teach in Higher Education’; “from our students’ point of view, assessment always defines the actual curriculum”.

At present, few subjects in our faculty provide exercises to encourage students to reflect on the skills associated with teamwork and even fewer directly assess these.

As part of the project we are going to address these issues by focusing on the constructive alignment of the teamwork related components of the Engineering graduate capabilities continuum. We will attempt to improve the alignment of the learning outcomes with the teaching, assessment and student feedback provided in key subjects where group work activities are undertaken. It is envisaged that improved student development of the generic competencies related to teamwork will ensue, resulting in fewer student complaints and disputes regarding group work contribution. Consequently, we should also see commensurate benefits related to student perception of group work assessment throughout their degree.
Congratulations Graduate's

On Friday 22nd of July the mid-year Graduation Ceremony took place for the Faculty of Engineering. The Faculty would like to congratulate a fresh round of graduates on the milestone, and wish them well in their future engineering Careers. This ceremony saw 17 Doctor of Philosophy’s awarded, and we would like to note the dedication and commitment of the supervisors to the continuing tradition of high quality research.

**Nischith Kumar Kashyap**

**Master of Engineering Practice with Distinction**

My hometown is Mysore, which is one of the oldest cities in India, the second largest city in the state of Karnataka. As most of my family have settled abroad, they gave me the support and inspiration to pursue my postgraduate studies overseas.

I have always been interested in studying Engineering since childhood as many of my family members are Engineers. I did my schooling in the Middle East and completed my bachelor’s degree (with Distinction) from Vidyavardhaka College of Engineering, Mysore, which is part of VTU (Visvesvaraya Technological University).

The year 2008 was a memorable year in my life because firstly I had become an engineer and secondly I decided I wanted to continue my studies. In India, the trend at that time was to go to the United States for Masters, study and make money, get back and enjoy life because of the prospects available there. But the way I looked at things was different. “The US is not the only country”, I thought. While searching for other options I came across Australia and was delighted to find out that engineers were valued there. I researched a few universities online and came across the University of Wollongong (UOW). I found out that UOW’s Mechanical Engineering course is considered to be one of the best courses in NSW. I was also impressed that UOW has a branch in Dubai and thought that my degree would be valued in the Middle East as well, because of UOW’s reputation and presence there. Because of UOW’s five star rating, I was convinced that it was the right choice for me.

Arriving in Wollongong I was initially interested in the Oil and Gas aspects of mechanical engineering until I studied a subject in the Modelling and Simulation aspects of real world systems. Before coming to UOW I never knew this branch of engineering existed. I then completed a research project under Associate Professor Peter Gibson which was related to the Simulation engineering field.

The Master of Engineering Practice course has provided me with the opportunity to expand both my social and professional networks. I really enjoyed the team work assignments and learnt effective teamwork can be achieved through communication, time management and dedication, even when there’s no face to face contact. The online online discussion forums were great and I found it was not only helpful to exchange study concepts and suggestions with my peers but also provided me with some unexpected ideas that I could use in my daily life.

Thank you to the Faculty of Engineering academic staff conducting the course; they were always available and replied promptly to student enquiries. Their support helped me achieve my academic objectives. I was able to work in the SMART Infrastructure Facility (Research based organisation) as a part of a Academic/Research Team. In addition to this I also assisted in tutoring postgraduate and undergraduate students by taking lab classes, in particular Microsoft Project and Flexsim Software.

During my time at UOW I have taken the opportunity to get involved in all events pertaining to International students. I have been on the “Welcome to Wollongong” organising committee - an event held in the city in February to welcome international students to Wollongong. I was also Vice President of the Wollongong Indian Students Association (WISA). WISA help students to become established and provide information and support for any problems that may arise, such as accommodation, counselling etc. I was also one of the main organisers of an event called Tarang which highlighted the culture and ethnicity of India. As part of giving back to UOW I was a Mentor for the Engineering Faculty and also an Orientation-host every semester.

Australia is a wonderful place, it allows me to be both Indian and Australian. I am planning to settle in Newcastle for a time however, I will miss my life in Wollongong, and the opportunities to continue to explore and grow.

I would definitely recommend the Masters in Engineering courses to any engineer who would like to expand their knowledge and experience. It is a very valuable course and I believe the knowledge you gain from this course is not possible to gain through work experience. Lastly, special thanks to Associate Professor Peter Gibson for his guidance and mentoring throughout my course.

Nischitch has since accepted a position with a Simulation Modelling company in Newcastle, the Faculty wishes him well in his career.
RTSA Award/Rolling Stock Alumni Networking Event

On the evening of August 24th, more than 30 rolling stock professionals, alumni, current students and lecturers gathered at the University of Wollongong’s Sydney Business School to celebrate the presentation of the 2011 Railway Technical Society Australasia (RTSA) Wheel-Rail Interface Award to Mark Dobrovits for his dissertation completed within the Master of Rolling Stock Engineering degree at the University of Wollongong (UOW).

After graduating with a BE in Materials Engineering from UNSW in 2005, Mark joined RailCorp as a Project Engineer working on the procurement of the Outer Suburban Car (OSCAR) fleet. In 2008 he moved to RailCorp’s Engineering Technical Services unit where he began working with mechanical systems across the broader rolling stock fleet.

Throughout 2008 and 2009 Mark studied the Master of Rolling Stock Engineering at UOW and completed his Master’s dissertation entitled “A Study into the Occurrence of Subsurface Rolling Contact Fatigue Cracks in the Wheels of RailCorp’s OSCAR Fleet.” Mark investigated subsurface wheel defects found within one of RailCorp’s fleets and the causes of observed subsurface cracks within the wheels of this particular fleet, comparing observed growth rates with theoretical and calculated stresses.

After a warm welcome by the rolling stock course coordinator Associate Professor Richard Dwight, the Dean of the Faculty of Engineering, Professor Chris Cook outlined the Faculty’s leading engineering research in rolling stock and the Cooperative Research Centre for Railway Innovation which builds on long standing collaborations with local and multinational industries in Australia and abroad.

The Award was presented to Mark by the RTSA Deputy Executive Chair, Katharina Gerstmann. Katharina is the Business Leader Track Services at Interfleet Technology Pty Ltd, and Deputy Executive Chair of the Railway Technical Society Australasia (RTSA). Katharina commended Mark’s dissertation as a significant contribution to better understanding the propagation and behaviour of these rolling contact fatigue cracks and how they have assisted in the development of optimised wheel re-profiling activities.

The guest speaker was Philip Pearce, General Manager of RailCorp's Professional Services Division. Reflecting on his recent experience with the development and rollout of the Waratah train, Phil sought to reinforce key issues in the specification and construction of rolling stock in his presentation “Waratah Project: Insights and Energy Issues.” He also highlighted areas where Waratah leads the world and where the next challenges in continuous improvement were for rolling stock engineers and their organisations. As the Executive Train Design Manager for the Waratah trainset, Phil drove the focus on energy issues for the train.

Associate Professor Richard Dwight, course coordinator of the postgraduate Rolling Stock Engineering and Engineering Asset Management degrees is currently developing further postgraduate coursework programs in Electrical Traction Engineering. More information about these degrees is available at the following website: www.uow.edu.au/eng, or by contacting rweine@uow.edu.au, phone 4221 4566.
Spring Enrolment and Orientation

The Faculty of Engineering welcomed over 130 new domestic and international students to the current spring session on Monday 18th July. The new students started their first week meeting their Course Advisers, organising their enrolment and participating in the Spring Orientation activities.

Numbers were down for the Flying High with Engineering Spring Orientation Event –held on Tuesday 19th July. Despite this and the impending rain, the new students had fun building and flying balsa wood planes.

The activity divided the students into groups and had them navigate to key locations within the Faculty of Engineering to collect various parts of the planes. Once the students had all parts of their plane, they then progressed to the Faculty of Engineering test flight area to record the longest flight. The winning plane flew over 12 metres. The winning group of new Chinese undergraduate and postgraduate students were awarded certificates and UOW Hoodies.

Many thanks to A/Prof Rodney Vickers, Course and Discipline Advisers, and to the Faculty of Engineering’s administration staff and students, including our ‘O’ Hosts, who warmly welcomed our new students.

6th International Structural Engineering and Construction Conference

Associate Professor Muhammed Hadi was recently in Zurich attending the 6th International Structural Engineering and Construction Conference (ISEC-6) organised by ETH – the Swiss Federal Institute of Technology. The theme of the conference was, ‘Modern Methods and Advances in Structural Engineering and Construction’. See the link for more information on ISEC-6 http://isec-society.org/ISEC_06/index.htm

Muhammed chaired two sessions and presented two papers. The first paper was co-authored by PhD student Mr Veysel Yazici and titled, ‘Testing FRP Confined Columns Under Eccentric Loading’, and the second paper was co-authored by PhD student Mr Eren Uz and titled, ‘Investigating the Effect of Pounding and Impact on Base Isolated Adjacent Buildings Due to Earthquakes’.
Centre for Student Engagement

How can you as a UOW student get more involved in student life? Get involved with the Centre for Student Engagement (CSE).

The Centre for Student Engagement is a service provided by Wollongong UniCentre, which aims to give students (undergraduate and postgraduate) at UOW the opportunity to connect with each other, the campus and the wider community. CSE runs a number of events & activities, volunteering, leadership and professional development programs that will complement any UOW degree.

Some of the services CSE provide include:

**Personal and Professional Development Programs**
- Big Fish Leadership Program - *workshop to explore and develop leadership techniques in a community or campus project*
- The S4S National Tertiary Leadership Conference and organising team – *students develop their leadership skills and knowledge along with event management skills, team work, communication and organisational skills*
- Elevate Young Leaders Forum - Senior UOW students act as team leaders and facilitators for the Year 11 SRC Leadership program
- CSE Student Team Leaders - *volunteer student team leaders assist in the running of the Big Fish and UniCrew programs and learn valuable leadership skills*
- Workshop Series - *low cost workshops including Responsible Service of Alcohol, Senior First Aid, Learn to Surf and Yoga*

**Social Networking Opportunities**
- Clubs & Societies - *there are over 60 Clubs affiliated with the UniCentre. For full list see [http://unicentre.uow.edu.au/getinvolved/clubs](http://unicentre.uow.edu.au/getinvolved/clubs)*
- UniCrew - *University and community members can request the support of UniCrew volunteers for events, activities or other initiatives, which require student volunteers.*
- Entertainment and Events – *range of free activities for all UOW staff and students including Theme Weeks, Market Alley and Student Parties*

**Student Engagement**
- Community Impact Team – *this is a team of motivated students from every faculty, both undergraduate and postgraduate, committed to making lasting changes to a community or community organisation*
- Aspire Leadership Program - *connecting staff and students from the UOW community, wishing to develop leadership skills whilst making a difference in the local community*

**Other Services offered by the CSE**
- ATO Free Tax Help Service
- Resource Hire – *available to both students and staff eg BBQ hire*

Information on all services provided by the CSE is available on: [http://unicentre.uow.edu.au/getinvolved](http://unicentre.uow.edu.au/getinvolved)
Farewell to Brett Lemass

Associate Professor Brett Lemass is leaving UOW in favour of pursuing closer relations with industry. Staff and students are very grateful for his substantial contribution to UOW, particularly in teaching and learning where he brought great insight into his teaching from his strong industry background. He has consistently achieved stellar student evaluation scores since 1999, including in large classes, and has won several awards including OCTAL awards in each of 2003, 2006, 2009, plus a Carrick Award in 2006 for ‘Practical Books on Design and Management’, and he has been Discipline Advisor in Civil Engineering for the past five years. He has also written three research books which are used widely across industry and academia, both nationally and internationally.

In the 12 years Brett has been here, many students and staff have benefitted enormously from his work. He will still be around from time to time though, and the Faculty looks forward to a continuing association.

As a measure of their high esteem and appreciation, the CME postgraduate students held a farewell luncheon for Brett on the 13th of July. In his honour, the students provided a variety of home cooked dishes representing international cuisine.

NCEDA Honours Scholarship

Congratulations to David Everitt for being awarded an inaugural NCEDA Honours Scholarship.

The National Centre of Excellence in Desalination Australia (NCEDA) leads and coordinates Australia’s research in desalination technology. Through the NCEDA, Australia is building national capacity and capabilities in desalination with a dual focus on breakthrough fundamental and applied research with a goal of delivering meaningful improvements at commercial scale.

This is the first time NCEDA is offering scholarships to outstanding Honours students enrolled at the national Participating Organisations.

Applications are invited from Honours students in any field of study whose area of research contributes to the knowledge of desalination and aligns with NCEDA’s Research Roadmap, [http://scholarships.curtin.edu.au/scholarship.cfm?id=970](http://scholarships.curtin.edu.au/scholarship.cfm?id=970)