



FACULTY OF ENGINEERING

JUNE 2006

Guides in Engineering and Science Saturdays

The Faculty of Engineering and the School of Electrical, Computer and Telecommunications Engineering (Faculty of Informatics), hosted its first “innovative girls in engineering program” on Saturday 13 May with a group of Girl Guides introduced to engineering and physics through various experiments conducted on campus.

Eighteen guides and their leaders from the Illawarra and Southern Sydney were involved in the first of a



Girl Guides attending the first Guides in Engineering and Science Saturday at the University of Wollongong

series called Guides in Engineering and Science Saturdays.

Four hands-on activities were offered during the day which had the Guides ‘Exploring Mars’, ‘Building and Testing a Wind Turbine to Produce “Green Energy”’, and learning about ‘Communication through the Ages’ and ‘Water Filters’...

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Dean's Spot

Our Faculty staff continue to receive a number of prestigious awards which recognize their high standard of teaching and learning. For example, the University last month announced its ‘Outstanding Contribution to Teaching and Learning’ (OCTAL) awards for 2006, one of which went to Dr Brett Lemass in the School of Civil, Mining and Environmental Engineering. Dr Richard Dwight also recently received funding to support the introduction of considerable innovation into the teaching of first and second year engineering subjects. Student surveys have shown the students are very supportive of the changes made.

The Faculty was also very successful in receiving competitive funding in six separate teaching projects announced this week. Three of these are concentrated on our School of Physics: one to develop new programs assisting the teaching of Medical Radiation Physics, one to upgrade equipment to be used for demonstrations in Physics lectures (which all engineering students attend) and one to develop stronger interaction between lecturer and students during lectures. Three other Faculty wide pro-



jects were also funded; one in the area of redesigning conventional class rooms to allow for more group and team work; one to assist the delivery of courses in more than one physical location; and one on investigating ways to improve the development of team skills in our undergraduate engineers.

On the national scene, the highly respected Carrick Institute awarded one of only five grants for the whole of Australia to Dr Anna Carew in conjunction with Professor Tim McCarthy (School of Civil Mining and Environmental), Associate Professor Paul Cooper and Dr Sharon Nightingale (School of Mechanical, Mechatronics and Materials). This deals with identifying, improving and disseminating good practice in teaching and assessing graduate attributes. The Faculty's key role in this project will help ensure our graduates are well skilled to take their place in the community and in the workforce. This project includes collaboration with Professor Alan Bradley from the Institute of Engineers Australia, and key engineering education researchers at three other Universities. ■

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Appreciation to Ray Tolhurst

Mining and materials engineering students expressed their appreciation to Ray Tolhurst during their last class with him in the final week of session. Ray has provided continual support for the AusIMM Student Chapter during his involvement with the Illawarra AusIMM Branch and has gone out of his way to encourage students to make the most of their degree. To promote activities within the Student Chapter he has donated a large portion of his own money, earned from teaching the minerals beneficiation class to the group.

The AusIMM Student Chapter Chairperson, Simone Walsh, who pre-

sented a Certificate of Appreciation to Ray, remarked how lucky they were to have a mentor who was committed and involved as Ray, and how grateful she was to have him as a friend. ■



Members of the AusIMM Student Chapter present Ray Tolhurst with a certificate of appreciation.

Prof. Wang visits from China

Professor Guo-Dong Wang from Northeastern University (NEU), China was invited by Professor Kiet Tieu and Associate Professor Zhengyi Jiang to visit the Faculty of Engineering from 13-23 April 2006. Professor Wang is internationally recognised as a distinguished professor in steel rolling technology and automation, and is the only Academic at the Chinese Academy of Engineering majoring in steel rolling technology. He was a former Director of the State Key Laboratory of Rolling Technology and Automation (RAL, 1996-2004), the only national key lab in rolling and automation areas in China.

During Wang's visit to UoW he gave a lecture on "Cost-saving Steels and its Manufacturing Processes", which included:

i) The progress of the steel industry in China; ii) The unbalance in the development of the steel industry in China; iii) The strong needs in the society for steel in China; iv) Self-integrated steel rolling plants in China; v) The development of the new generation steel technology; and

vi) The research facilities utilized or developed in RAL.

The lecture attracted wide attention from BlueScope Steel personnel from Port Kembla and Western Port. Future collaborations between the Engineering Faculty and RAL and NEU were also discussed. ■

Staff News

Dr Hadi Khabbaz rejoined the School of Civil, Mining and Environmental Engineering as a lecturer on 23 May 2006.



Hadi received his Bachelor degree in Civil Engineering and Master of Science in water engineering from Shiraz University, Iran. He completed his PhD at the University of New South Wales in 1997. His thesis was on developing constitutive and numerical models for soil-water interaction in unsaturated porous media.

Following graduation, Hadi carried out research in water and wastewater treatment using membrane technology, and developed associated mathematical and numerical models. He also conducted research at UoW on geotechnical aspects of railway engineering under Professor Indraratna's supervision. Hadi has been involved in the consultation and construction of many civil engineering projects, and has gained effective hands on experience in this area. Hadi is extremely keen on teaching, and has extended experience in teaching and employs effective learning strategies in his lectures. ■

Student wins EEF Scholarship

Marie Boisclair St-Onge, a third-year mining engineering student at the University of Wollongong has been awarded a Rio Tinto scholarship from the Education Endowment Fund (EEF).

The EEF scholarships recognise academic talent as well as rewarding diversity, innovation and passion for the industry. In 2006, 23 scholarships were awarded to students committed to a career in the minerals sector.

On finishing school, Marie spent several years travelling and working overseas before deciding to study for a degree that would allow her to continue to travel.

She says "I have since very much enjoyed being part of the minerals industry. I spent last summer working at the Baal Bone Open Cut mine, where I particularly enjoyed learning about mine economics. I am also very interested in the environmental challenges facing the mining industry. This scholarship will allow me to develop these interests further and concentrate on finishing my degree." ■

Visit to Singapore and Malaysia

Professor Brian Uy recently returned from Malaysia and Singapore where he delivered four papers in the area of steel and composite structures. Brian presented an invited paper on the behaviour and design of concrete filled steel columns at the International Symposium on Steel Tubular Structures in Kuala Lumpur organised by the Association of Consulting Engineers, Malaysia. Brian then delivered a keynote paper (co-authored with Professor Bradford, UNSW) and an associated paper on shear connection design issues at the 8th International Conference on Steel, Space &

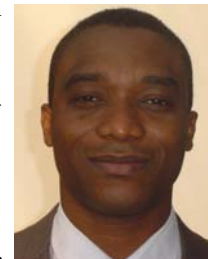


Composite Structures in Kuala Lumpur. Finally, Brian gave an invited paper on advances in steel and composite structures from an Australian perspective at the International Symposium on Advances in Steel and Composite Structures organised by the Centre for Advanced Construction Studies, Nanyang Technological University (NTU), Singapore. ■

Photograph of Petronas Twin Towers, Kuala Lumpur. Upon completion the world's tallest buildings utilised extensive amounts of structural steel tube in the design. Malaysia is the world's second largest exporter of steel tubes in the world behind Japan.

Visit to Switzerland

Dr Kenneth Agenson recently visited EAWAG in Switzerland and the Tokyo Institute of Technology as part of his UIC grant where he promoted and gave presentations on research conducted at the University of Wollongong.

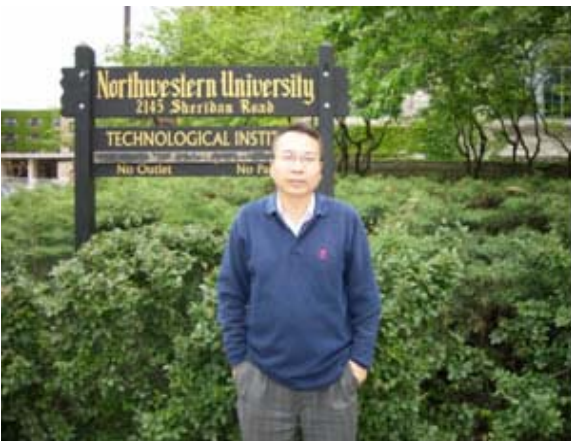


As a result of this visit, Professor Taro Urase (currently the Head of Civil and Environmental Engineering Department of the Tokyo Institute of Technology), will be visiting the University of Wollongong for a few days in mid-June. During this visit he will meet the Dean of Engineering, Head of School of CME, and other Staff in the faculty. It is hoped that this visit will provide the opportunity for conclusive discussions regarding joint collaboration for research grants and student exchange with the Tokyo Institute of Technology. ■

Visit to the USA

Dr Zhengyi Jiang is conducting a six week Scientific Visit to the Northwestern University (NU), USA from 12 May 2006. This visit is under an award from the Australian Academy of Science for 2005/06 Scientific Visits to the United States of America on the collaborative project "Nano-micro-scale tribological study in cold rolling of strip" with Pro-

fessor Q. Jane Wang and Dr. Shangwu Xiong, Department of Mechanical Engineering, NU. The collaborative work will improve the fundamental understanding of nano-micro-scale friction and surface roughness in cold strip rolling, which has not been identified before, and further develop the international research collaborations with top international research teams in tribology and materials science and engineering at Northeastern University (The NU Materials Science and Engineering undergraduate program was ranked 3rd in the USA, and its graduate program was ranked 2nd). ■



World Wide Welding Trip

John Norrish will be on study leave for five months from the 1st of June. He will start the period with a visit to the Paton Institute in the Ukraine where he will present the Paton Laureate address on Welding Research at UoW. Together with Dominic Cuiuri, John will also attend the International conference on Computers in Welding and Manufacturing in Kiev where they will present four papers. John will then spend a month at Delft University of Technology developing areas of common research interest with Prof. Ian Richardson in the Joining and Mechanical Behaviour group. This will be followed by visits to Fronius in Austria, and BOC, Cranfield University and The Welding Institute in the UK before John travels to Quebec to attend the International Institute of Welding Annual Assembly. The final leg of the trip will take in a visit to the welding group at Colorado School of Mines in Golden Colorado followed by a brief spell of contemplation up a mountain in Wyoming. ■



High Power Diode Laser Returns

The 3kw high power diode laser purchased under the LIEF scheme has recently returned to the MRL from its stay at Swinburne University. The laser was powered up on the 27th of April and will be used for a continuation of the Hybrid GMAW research being conducted by PhD student Justino Mulima with the assistance of Dr Paul Di Pietro of ANSTO. The laser will also be used in a novel manner to generate and study metal vapour and fume by laser ablation of steel samples under controlled atmospheres. This work is being undertaken as a research masters project by Shervin Farjad under the supervision of John Norrish and Brian Monaghan. ■

BOC Research Progress

The suite of welding research projects being conducted for BOC is progressing well with a series of presentations recently made to the UK project director. Thanks to the efforts of Paul Cooper and Ajit Godbole one provisional patent has already been filed and at least another two are envisaged. The work is very multidisciplinary and is now providing research topics for two undergraduate students and one part time PhD student. ■

Diary Dates

- 6 June** WAC Committee
- 13 June** Faculty Committee
- 29 June** School Assessment Committees

CSCE Conference

Muhammad Hadi recently attended the 2006 Annual Conference of the Canadian Society for Civil Engineering (CSCE) where he presented two papers. Both papers dealt with reinforced concrete. The first paper dealt with the behaviour of FRP wrapped columns under eccentric loading and the second paper dealt with the fibre reinforcing columns. Both papers were well received. ■

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The activities enabled the Guides to satisfy the requirements for the Guide badge, 'Explore-A-Challenge Science and Technology'.

The next Guides in Engineering and Science Saturday will be held in September. Further information can be obtained from the Faculty of Engineering on (02) 4221 3419. ■

Girl Guides were introduced to engineering and physics through various experiments conducted on campus.

