Dean’s Spot

Our University and Faculty have had another excellent year. Engineering enrolments for 2005 were up on those for 2004, and the initial figures so far show that our enrolments for 2006 will be even higher. This means more school leavers than ever before are deciding, as their first preference, to study engineering in our Faculty. Our enrolments from international students, at both undergraduate and postgraduate levels, have also increased in 2005, and initial signs are that we should expect further increases in 2006.

Our University was ranked number one in Australia for teaching quality and one of our senior staff members, Associate Professor Roger Lewis, has won a prestigious teaching award, one of only nine given to University staff over the whole state of New South Wales.

Research in the Faculty also continues to be strong, with several new competitive research grants received this year across most of our professional engineering disciplines, many of them in close collaboration with industry. This supports our Faculty’s reputation for carrying out high quality research that is very relevant for industry.

These successes depend on all of our staff – my thanks to our academic teachers and researchers and our administrative and technical support staff, without whom the Faculty could not function.

Season’s Greetings to everyone, and to our friends, supporters, students and alumni around the world. Merry Christmas and Happy New Year to all!

Many of the projects created by the six teams of finalists are unique and solve everyday problems. The projects included:

**Leaf Lobber:** (Overall Winner) a self-cleaning leaf removal system and the first of its kind which allows water in drains and pipes to be diverted if there is a build-up of leaves.

**Stand Up:** (Winner of Best Technical Solution) This is a portable bike stand that allows cyclists to complete their own repairs while on the road. The collapsible stand is attached to the bicycle.

**Schooner Table:** (Winner of Most Patentable Device) This project aims to revolutionise and minimise clean up time for bartenders in clubs and pubs.

**Super Water Saver:** (Winner of the Encouragement Award) Everyone knows that when you turn on the shower it can take a long time for the water to become hot. The Super Water Saver aims to save water by offering a dial-in thermostat where individuals can choose their temperature. A holding tank stops cold water from going down the drain and will save thousands of litres of water every year.

**P-Plate Changer:** (Winner of People’s Choice Award) This simple but unique idea will be a wonderful device for learner drivers and their families. Drivers can use a remote control to display their L or P plates on the dashboard and at the back of the car.

**Hover Trolley:** This project is a hovercraft connected to a vacuum cleaner blower that can withstand 100kg of weight.

Creative Design Awards

The finals of the Faculty’s Creative Design Competition were held on 11 November. The students involved in the competition were enrolled in the 1st year engineering subject ENGG154—Engineering Design & Innovation.
Outstanding Research Collaboration

Collaborating with others on perfect superconductivity materials has paid off for the Director of the Institute for Superconductivity and Electronic Materials (ISEM).

Professor Shi Dou was recently nominated for an award at the Business and Higher Education Round Table Awards for Outstanding Achievement in Collaboration in Research and Development, Education and Training.

Professor Dou was nominated for Best International Collaboration for his work in superconductivity with Hypertech Research, CMS Alphatech and Ohio State University. Superconductors are materials that have no resistance to the flow of electricity below certain temperatures.

ISEM has been collaborating with the three groups since early 2001 to improve technologies and a range of electric power applications based on magnesium diboride (MgB2). Newly discovered superconductivity at 40K in MgB2 has opened a technical window to a range of applications previously thought accessible only with high temperature superconductors.

Professor Dou has a total research team of 60 under his control and about one third of his 50 PhD graduates are now holding senior positions at institutions and industries in various countries.

Professor Dou said his team was recognised for its cutting edge research through invitations that researchers received to the most important superconductivity conferences and seminars worldwide. He was awarded the Centenary Medal for the contribution to materials science and engineering and his team was awarded the Australian Engineering Excellence award in the highly commended category in 2004.

International Collaboration

Associate Professor Roger Lewis has received support from the German Government, through the Bilateral Cooperation in Science and Technology Program, for the project “Advanced Materials and Structures of Terahertz Science and Technology”. Investigating partners are Dr. Hans Hartnagel and his team from the Technical University of Darmstadt, who will make three visits to Wollongong over the next two years.

Dr. Weihua Li has successfully secured a grant with the China Exchange Program 2006/07, which is funded through the Australian Academy of Science and the Chinese Academy of Sciences. Dr. Li is collaborating with Professor Peiqiang Zhang from the University of Science and Technology of China on the project “Development of Nano-MR fluids based actuators”.

Professor Dou was very busy on a recent visit to China. He gave talks at Shanghai University, Tienjun University and Nankai University on the recent progress in superconducting and electronic materials at ISEM. Professors Dou and Liu were honoured in a ceremony as Adjunct Professors at Shanghai University.

Professor Dou also visited the National Nanotechnology Development Zone where a huge investment has been made in high level facilities, which were recently installed. He gave a seminar on the potential IP development at ISEM and held discussions with the President, Xu Jian Zhong. A laboratory will be established there and will collaborate with ISEM on nanomaterials.

Academic Promotions

Congratulations to Dr. Weihua Li, Dr. Phillip Flentje, Associate Professor Xiaolin Wang and Associate Professor Rodney Vickers on their successful promotions, which were announced recently.

Season’s Greetings

Best Wishes for 2006

Prof Shi Dou, Director ISEM; Prof Margaret Sheil, Deputy Vice-Chancellor (Research) and Prof Hua Liu, ARC Professorial Fellow ISEM, Faculty of Engineering.