

ENGINEERING ALUMNI NEWS

Number 9, June 2005



Since the start of the academic year, a lot has been happening at the Faculty. We welcomed 555 first year students, nearly thirty of whom were recipients of our Kick Start Scholarships. A major event was the move of the Department of Electrical and Computer Engineering across the road to the Chemistry Building. The move, which is a result of our growing size, is significant for a Faculty which has prided itself on being located traditionally in the one building. As we grow we continue to think about the ways in which we can maintain the close links amongst students and staff that have always been part of our culture.

Construction of the new Dean's Suite has been completed and that of the new library well underway. The library is being redeveloped to include a Student Centre. The construction is part of the Faculty's ongoing commitment to nurture students' academic and social development, and follows the successful refurbishment of the Engineering Atrium in 2003. With computer banks and study areas for up to 500 students, the Student Centre is expected to provide a comprehensive learning environment, and will be linked to the Engineering Atrium, creating a venue for both study and socialising. Expected completion date for the project is Spring 2006.

Early this year, we welcomed Associate Professor Gordon Mallinson as the new HOD for Mechanical Engineering. He replaces Professor Debes Bhattacharya who is on sabbatical this year and is

Message from the Dean

concentrating on research and leadership at the Centre for Advanced Composite Materials. In other staff movements, Associate Professor Robert Raine takes on the role of Associate Dean (Postgraduate) from Professor Richard Flay. I thank Professors Bhattacharya and Flay for their contributions; they have done well in their past roles.

On a sadder note, the founding head of the Department of Electrical Engineering and later Dean of the School of Engineering at Ardmore, Emeritus Professor Archibald Gordon Bogle, died in January, aged 90. Professor Bogle was renowned for both his imposing intellect and his physical stature. He was distinguished in his field but was much more than an electrical engineer. In a tribute to him on his acceptance of the Institution of Professional Engineers New Zealand (IPENZ) Distinguished Fellow Award in March 2004, the Institution acknowledged him as "an outstanding academic of rare intellect, with a dry sense of humour, and conspicuous integrity" and noted that he was "renowned for his fairness and insight which had brought admiration and respect to New Zealand, and for his service to King and Country, the engineering profession, the scientific community and The University of Auckland". Professor Bogle is survived by his daughter, his five sons and nine grandchildren.

In March, we hosted the Minister for Research, Science and Technology, the Hon. Steve Maharey, at the launch of two major pieces of equipment at the Research Centre for Surface and Materials Science. The Environmental Scanning Electron Microscope (ESEM) and an X-Ray Photoelectron Spectroscopy (XPS), worth more than \$1 million each, are the only ones of their kind in the country. They will be used by food and biological scientists, as well as surface and materials scientists. Both are significant purchases, which will help advance research in many areas, and provide a wider range of research and learning opportunities for our staff and students.

Staff, students and alumni of the Faculty continue to delight us with their achievements. Associate Professor Roger Dunn from the Department of Civil & Environmental Engineering has been awarded the 2005 Professional Commitment Award by IPENZ in recognition of his continuing contribution to engineering, IPENZ and New Zealand society. Professor Michael Pender was awarded an IPENZ Supreme Technical Award for Engineering Achievers in the Building, Construction and Amenities category. The award recognised his dedication to the pursuit of knowledge in geotechnical engineering, both as a researcher and teacher of the subject.

By the time you read this, we will have enjoyed graduation celebrations with 447 graduates and their families. Amongst our graduating students is Richard Beal, one of three New Zealanders selected as a Rhodes Scholar. Richard, who graduated with a Bachelor of Engineering in Chemical and Materials Engineering, leaves for Oxford University later this year to undertake a DPhil focusing on sustainable energy technologies.

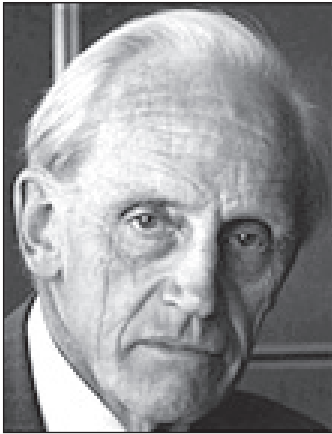
Of great pride also is the achievement of our alumnus Chris Liddell (Civil Engineering 1979). Computer software giant Microsoft has appointed Chris as Chief Financial Officer. Yet again proof that an engineering graduate can succeed in any area!

I thank you for your interest and support of the Faculty and hope to meet with many of you throughout the year. In September, our Annual Alumni Dinner and "...5" Reunion will also provide a good opportunity to renew old friendships and make new ones.

Professor Peter W. Brothers
Dean of Engineering

Obituary:

Emeritus Professor AG Bogle Died February, 2005, aged 90



Gordon Bogle was associated with The University of Auckland's School of Engineering for 25 years and is fondly remembered for his standards, principals and dry sense of humour.

Gordon graduated from Canterbury University in 1936 with degrees in electrical and mechanical engineering. In 1937 he went on a Rhodes Scholarship to Oxford and worked towards a Doctorate of Philosophy until the outbreak of World War II when he joined the Admiralty Team engaged in the development of radar: he installed radar on Lord Mountbatten's destroyer, HMD Kelly.

After the war, Gordon completed his doctorate and then returned to New Zealand to work as Chief Electrical Engineer (and later Director) at the Dominion Physical Laboratory. But he did not enjoy the Government environment – he was outspoken about the lack of funding – and in 1953 became the first Professor and Head of the Department of Electrical Engineering at the Auckland School of Engineering. (Established as the School of Mines in 1906, the School struggled for its existence until after World War II, when it moved to

Ardmore, into quarters that had been occupied by the RNZAF).

I first met Professor Bogle when I was in First Professional, at Ardmore. It was the second day of lectures and three of us – Jack Graham, Alton Gladding and I – were walking across the tarmac of the basketball courts when our path crossed his. He greeted us as Graham, Gladding and Boys. We were amazed. Like all the students in a new place there is an expected period of complete anonymity – yet here, day two, and it was gone. At that time privacy rules were less stringent and all enrolling students were photographed. Gordon was in the habit of talking the photographs home on the first day and memorising them – all 67 of new First Pro students by name, and he never forgot them.

Gordon was a man of principles – his own, but he stuck to them. He had a great intellect with a wonderful memory; was very well read, and had an extraordinary vocabulary. He also had a broad range of interests and could never be called an “average site engineer in gumboots”.

As far as family and neighbours were concerned he could make anything – furniture, clothes, canoes, and of course electrical gadgets. He also appreciated the arts, culture, music, film and theatre.

In Solzhenitsyn's Gulag Archipelago there is a passage where residents are looking forward to the arrival of an engineer. This engineer will appreciate poetry, art, sculpture; he will add enormously to life on the Archipelago. This is so much a description of Gordon: he was a strong supporter of a broad-based curriculum,

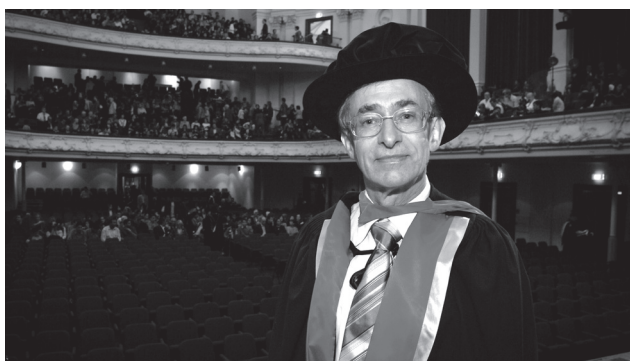
of the humanities, of general studies. He believed engineers should be well rounded people with outside interests – not simply technical boffins.

Gordon had a very dry sense of humour and a non-interventionist style – he let you get on with what you were doing and expected you to solve your own problems, but was always helpful. At writing up time he was a stickler for correct grammar, spelling, choice of words, technical accuracy, and style.

Gordon was not a great believer in immortality but he is survived by six children and nine grandchildren. Today we have an Engineering School – the largest in Australasia, with the highest entry level standards – built by Cliff Dalton, Gordon Bogle, Alan Titchener, and Neil Mowbray. Among these the position of Dean was rotated every three years and an anecdote Gordon told about these professors, concerned their children: Cliff had five, Gordon had six, and Neil had seven. On the day the Governor-General (Lord Cobham) visited the School at Ardmore it was noted he had eight children. The students welcomed him with: “Dalton has five, Bogle has six, Mowbray has seven, Cobham has eight: Cobham For Dean.”

Now the office of Dean extends to many Associate Deans and Deputy Deans, but Gordon's principles and standards live on in the hearts and minds of students and staff at the School of Engineering.

Professor John Boys, Emeritus Professor (Computer and Electrical Engineering), with contributions from Emeritus Professor Ray Meyer, former Dean of Engineering.



Associate Professor Neil Broom in the Town Hall

Kudos for excellent teachers

The Chancellor, Hugh Fletcher presented Associate Professor Neil Broom, Department of Chemical and Materials Engineering with the University's Teaching Excellence Award at the Engineering Autumn Graduation Ceremony in May. Associate Professor Broom was one of only four University staff members to be presented the award.

Associate Professor Recognised for his Commitment



Associate Professor Roger Dunn has been awarded the 2005 Professional Commitment Award by the Institution of Professional Engineers New Zealand (IPENZ).

Associate Professor Dunn from the Department of Civil & Environmental Engineering, was presented the award in recognition of his continuing contribution to engineering, IPENZ and New Zealand society.

“The IPENZ 2005 Professional Commitment Award highlights Roger’s contribu-

tion to the profession which has benefited New Zealand as a whole, as the work of our engineers impacts on New Zealand society,” said IPENZ Chief Executive Andrew Cleland.

A fellow of IPENZ, Associate Professor Dunn has been a great mentor to students and the wider engineering profession.

He has been involved in various IPENZ technical groups over many years, and displays the highest skills and attitudes necessary for an engineer practicing in the community.

Associate Professor Dunn began his career as an engineer with the Ministry of Works, where he was involved in both road and railway projects.

After a period working in the UK, he returned to start work in the Department of Civil Engineering at The University of Auckland in 1972.

Associate Professor Dunn has played a major role in the establishment and development of the University’s Transportation Studies course at both undergraduate and postgraduate levels.

Engineering Academic - Hood Fellow

Professor Dong Chen, Department of Chemical and Materials Engineering is the one New Zealander of four eminent academics to have been appointed as Hood Fellows.

The Fellows, all international leaders in their fields, are supported by the Hood Fund, established to honour the achievements of The University of Auckland’s former Vice-Chancellor, Dr. John Hood. This is the second group to be awarded fellowships.

The Hood Fund is a \$5.3 million endowment supported by the Lion Foundation, the Woolf Fisher Trust, Mr Douglas Myers and other prominent business leaders in Auckland and overseas. It makes possible visiting and travelling fellowships to pursue leading-edge research at prestigious universities as well as to deliver public lectures.

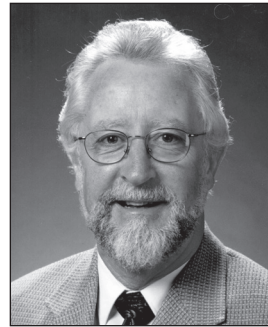
The outbound Hood Fellow, Professor Chen, an authority on food and bioproduct processing, has an exceptional research record. He is on the boards of more than five international journals and is inaugural chair of strategic development at the Riddet Centre.

He will use the fellowship to conduct leading edge research in his native China from December 2005 to February 2006. At Tsinghua University, the country’s top engineering and technology university, he will continue collaborative research on transfer phenomena in food and bioproduct processing.

He will develop a collaborative programme with the China Agriculture University in Beijing, the main agricultural engineering university. This will involve the development of food (manufacturing and safety) and biomaterial engineering.

Professor Chen will also visit Plasma and Ion (P&I) Inc in Seoul to discuss applying the company’s novel hydrophilic polymer surfaces to food industry processes in New Zealand.

Professor takes Supreme Technical Awards



Professor Michael Pender has won the Building, Construction and Amenities category at 2005 IPENZ Supreme Technical Awards for Engineering Achievers.

Professor Pender, a professor of Geotechnical Engineering at the Faculty of Engineering’s Department of Civil and Environmental Engineering, was awarded the prize for his dedication to the pursuit of knowledge in geotechnical engineering, both as a researcher and teacher of the subject.

“The Supreme Technical Awards for Engineering Achievers are biennial awards that recognise those who have demonstrated excellence and leadership in engineering practice over their career to the benefit of the Engineering Profession,” said IPENZ Chief Executive, Andrew Cleland.

“IPENZ is privileged to recognise the technical and professional achievements that Michael has attained as a member of the engineering profession over the years.”

Professor Pender, who has previously won a number of technical awards, is co-authoring a book on “Earthquake Resistant Design of Foundations” to be published this year.

He has also presented several papers and seminar lectures to international conferences.

Auckland University graduate to lead Microsoft’s global finance organisation



Microsoft Corporation has appointed University of Auckland engineering graduate Chris Liddell to lead its global finance organisation.

A civil engineering graduate from the University’s Faculty of Engineering, Mr Liddell takes up the new post of chief financial officer (CFO) on May 9.

As CFO, Mr Liddell will have responsibility for accounting and reporting, strategic planning and analysis, treasury, tax, audit, and investor relations.

Dean of Engineering Professor Peter Brothers says the University is delighted with Mr Liddell’s appointment.

“We are proud of Chris’ achievement and wish him the very best. His success demonstrates the ability of engineers to transcend the boundaries of their discipline and take on leading roles in the world of business.

“An engineering degree prepares students for understanding real-world situations and solving complex problems. The critical thinking ability of engineers is recognised in strategic positions in business throughout the world,” says Professor Brothers.

Mr Liddell was previously the chief financial officer at International Paper, a Fortune 100 company, and the world’s largest forest products company. Before that, he was chief executive officer of one of New Zealand’s largest companies, Carter Holt Harvey.

In addition to an engineering degree from The University of Auckland, Mr Liddell holds a master of philosophy degree from Oxford University.

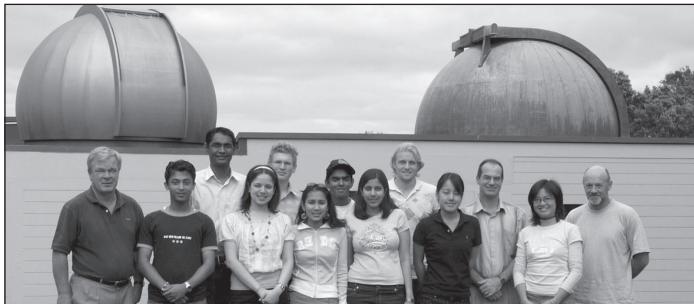
EPICS – Engineering Projects in Community Service

EPICS (Engineering Projects in Community Service) is a programme that enables teams of engineering undergraduates and academic mentors to work with community organizations that ask for technical assistance. The projects are long term, resulting in systems that have a significant, lasting impact on the community organizations and the people they serve.

The EPICS programme was founded at Purdue University, Lafayette, Indiana in 1995. There is now a consortium of 15 universities in the USA running the model, making up EPICS National. The University of Auckland is the first university outside the USA to run an EPICS programme, and is therefore the starting point of EPICS International.

At the Faculty of Engineering (at The University of Auckland), students in the final year of their Bachelor of Engineering degree are doing EPICS for credit, while students in their first, second and third years of study are voluntarily joining the teams. Level of enthusiasm is very high, and good progress has already been made.

Current clients in this, 2005, the first year of EPICS are: the Auckland Stardome, the Waiheke Waste Resource Trust, and the Auckland Zoo.



Auckland Stardome

The Stardome team's main goal is the automation of the dome's rotation. Following this, they will look at:

1. automating the shutter
2. making the dome's entry and exit safer
3. controlling the heat within in the dome
4. synchronising the dome's movements with those of the telescope.

All solutions will be focussed on safety and will copy with ASCOM standards. In the event of a major failure, the supply of power to the dome and telescope will be automatically stopped.

The team is currently investigating possible solutions to the automation of the dome. A final solution for the automation is expected to be built by early August; the rest of the project should be completed by the end of October.

Waiheke Waste Resource Trust

Conversion of waste to cooking oil to biodiesel

Waiheke creates two tonnes per month of waste cooking oil that must be transported off the island for disposal.



The WRT team aims to create a simple, fully automated, and mobile process and plant for converting the waste cooking oil to biodiesel. The fuel will need to meet ASTM B100 standards.

There are five main tasks: laboratory testing, engine performance testing, plant design, pilot plant implementation, and final plant construction and commissioning. Laboratory testing has already started and is expected to be finished in August.

Engine performance testing using a one-cylinder diesel engine will begin in July and continue till September.

By the end of this year, a preliminary plant design should be drafted so that the pilot plant should be able to be constructed by mid-2006.

A plant to crush bottle glass to sand

Cleanstream Waiheke currently ships their waste glass to Auckland to be re-melted, costing them \$20,000 a month on waste glass transportation alone. This project will create a small-scale plant on Waiheke Island capable of processing waste container glass into a form of clean sand with a range of grades for use on the island.

The glass cleaning process has been identified as being one of the key issues in the system design; it will include machine tasks to remove labels, plastic and metal caps and linings, as well as residue in containers, before the glass is crushed into fine aggregates.

Other main challenges in this project include machine noise control and finding potential markets and uses for the glass sand product.

Auckland Zoo



The Auckland Zoo is the largest consumer of water in the Auckland region, using 40,000 litres per hour, 3-5 hours per night, for irrigation alone. The Zoo would like to reduce its dependency on external water and power.

The EPICS Zoo team's aim is to design and implement systems that make further use of the Zoo's existing resources.

Race Car a Credit to Team



Formula SAE Team, Melbourne

Not many people thought they would get their car to the start line let alone claim a top ten finish, but “can’t do” isn’t part of the vocabulary for a group of Auckland students.

The University of Auckland Formula SAE Team that built and designed a formula-style race car have finished 6th and picked up the best endeavour award for rookie of the year at the Formula SAE 2004 competition in Melbourne in December.

Up against 30 of the world’s top engineering universities, the students have pulled off a remarkable result for a first year team.

“What we have managed to produce in nine months, takes most teams two years, so it’s an unbelievable achievement and result for us,” says 2004 Team Leader Chris Paykel.

The team, made up of forty engineering students from The University of Auckland, have worked day and night to get the car into a competitive state.

“We went into the competition with twin goals - making the top ten and claiming the rookie of the year - we managed to do both and in style,” says a jubilant Chris.

The long hours and sacrifices were all well worth it when representatives from both SAE International and SAE Australasia heralded the car as the best first year car that they had ever seen.

“That was an amazing compliment and credit for the team, especially when you put it into perspective, these guys have been running the competition

internationally for over 20 years,” says Chris.

Over the four-day event the team was given points for a presentation of their design and cost report and their car’s performance in four dynamic events, including an acceleration test, skid pad test, autocross event, and a fuel economy and endurance test.

“Featuring strongly in all disciplines was the key to our success but finishing fifth in the 32-lap fuel economy and endurance race really clinched it for us,” he says.

Competing in the competition wouldn’t have been possible without the support of The University of Auckland and businesses within New Zealand.

“It’s not really your run of the mill academic project, but the Dean of Engineering could see the value in it for students and got right behind us along with the New Zealand motor sport and business community who have provided us with financial support.”

With such a promising result in the competition the students have already started planning for this year (2005) but this time rather than a top ten finish they want to take the title.

- Continued from page 4

The project is split up into two linked projects: site water management and sustainable electricity generation. The two projects are being run as one because of the unique relationship between them.

The water management aspect of the project focuses on water sources and water recycling, a large part being piping and pumping considerations.

The new native frog house needs almost 100% humidity. A prolonged external power outage would cause major problems; hence the search for sustainable, renewable, internal sources of electricity able to sustain the internal environment of the house.

Current possibilities are leaning towards the design of a micro-hydro system using the Motions Creek that flows through the Zoo, though other power generation options will also be looked at.

The initial research stage of the project will investigate the topographical data, flow rate of Motions Creek, resource consent and the Zoo’s 10 year plan. This information will be used to provide a detailed description and definition of the current environment and systems that are currently in place at the Zoo.

This initial research stage will be completed by the end of May 2005.

Detailed research will be done by two separate groups focusing on power generation and water management. It will cover areas such as the potential energy options, the current energy usage, the current water usage onsite including stormwater, together with water quality.

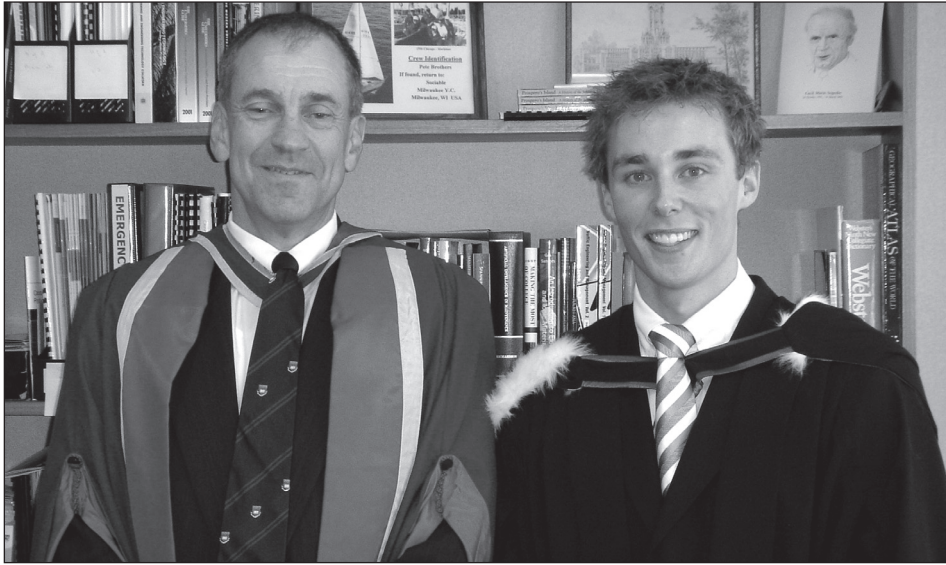
This phase will be completed by the end of August and will be followed by conceptual design.

Detailed design and implementation of these projects is projected to start in 2006.

For more information please contact Dr. Heather Silyn-Roberts, EPICS Director:

h.silyn-roberts@auckland.ac.nz

Scholarships at the Faculty of Engineering



Professor Peter Brothers, Dean of Engineering and
Richard Beal - Rhodes Scholar

Engineering student joins illustrious list of great New Zealanders

University of Auckland engineering graduate Richard Beal will soon follow in the footsteps of other great New Zealanders by packing his bags and heading to Oxford to further his studies.

Richard, who has just completed a Bachelor of Engineering in Chemical and Materials Engineering, is one of only three students nationwide to be awarded a 2004 Rhodes Scholarship to study at the English speaking world's oldest academic institution.

Rhodes scholarships constitute the pinnacle of achievement for university graduates wishing to pursue postgraduate study and are awarded after a rigorous selection process. Proven intellectual and academic ability of a high standard is the first quality required of applicants, but they are also required to show integrity of character, interest in and respect for their fellow beings, the ability to lead and the energy to use their talents to the full.

Fourteen of the 36 Rhodes Scholars selected over the last 12 years have been from The University of Auckland.

Richard, who is described by his lecturers at University as an excellent, all-round, high achieving scholar with strong sporting interests, cultural and community involvement, intends to undertake a PhD in the Department of Materials Science at Oxford focusing on sustainable technologies.

“I want to work on solar cells or carbon dioxide sequestration in the deep ocean. Carbon dioxide sequestration is about pumping carbon dioxide from power plants and other producers into huge reservoirs either underground or beneath the sea, where it is absorbed and kept out of the atmosphere.

“I want to determine the mechanisms by which the carbon dioxide migrates once pumped into these reservoirs.”

If successful, carbon dioxide sequestration could have significant benefits for the environment by reducing the rate of increase in global warming.

In his time at The University of Auckland, Richard has won many scholarships and awards and spent a semester last year at the prestigious

University of California, Berkeley, as a result of one such achievement.

A former dux of Rosehill College, he gained an A-plus grade in a university calculus paper while still at secondary school, before achieving an outstanding bursary examination result.

Richard says studying engineering was an obvious choice for him as he enjoyed maths and physics at school and “the wide range of skills you gain from an engineering degree had appeal”.

“It’s amazing what an engineering degree can help you achieve in terms of being able to make people’s lives better. I’ve really enjoyed my studies at The University of Auckland and find chemical and materials engineering very exciting.”

And he doesn’t spend all his time working on engineering projects either. The all-rounder enjoys badminton, both as a player and coach and has been a member of a Slazenger Cup-winning Counties Manukau team as well as being selected for the NZ Universities’ Mens Badminton Team.

Richard’s cultural interests span acting, debating, public speaking and music. He is a member of the Auckland University choir Campus Cantoris and completed several music courses as part of his studies.

Richard says his school motto of pursuing personal excellence has served him well.

“To me it’s really about being the best I can be and just trying to be a good person generally.”

And it’s not all talk either. In high school, Richard was the student rep on the board of trustees and helped set up a peer tutoring scheme. He says he wants to continue to work on projects that will help people and the environment.

Qualification to benefit Aluminium Industry



Dr Margaret Hyland lecturing

The international aluminium industry is set to benefit from a new postgraduate certificate being offered by the Faculty of Engineering at The University of Auckland.

The Postgraduate Certificate in Light Metals Reduction Technology integrates all key aspects of smelting technology and is recognised internationally as a key qualification for improving the technical performance of smelters.

The programme, which aims to teach advanced concepts in chemical and materials engineering specific to light metals reduction technology, has previously only been offered at the University of New South Wales in Australia. It is now available for the first time in New Zealand, through the Light Metals Research Centre and the Department of Chemical and Materials Engineering at The University of Auckland.

Light Metals Research Centre Director Dr Mark Taylor says the Postgraduate Certificate will train future managers of the industry and open the door for them to move into research as well.

Course Coordinator Dr Margaret Hyland from the Chemical and Materials Engineering Department says the international light metals industry is growing rapidly and courses like the Postgraduate Certificate are increasingly important.

“As the industry grows, it will become more competitive and the need for staff who have an understanding of recent advances in technology and leading edge research will rise.”

Dr Hyland says the importance of the course is reflected in its “truly international” student base.

“Current students have come from as far as Iceland, Germany, United States, Dubai, South Africa, Argentina and Australia.”

The Postgraduate Certificate is tailored to student as well as industry needs. The Certificate has restricted class size to allow for intensive learning and interaction. Students also spend a significant period on site at aluminium smelters, applying theory to smelting practice.

The semester-long programme is made up of four papers, including Electrochemical Engineering, Aluminium Reduction Process Operations, an overview of the Light Metals Industry, and Materials Performance and Selection for Light Metals Processing.

Most of the programme is taught through extra-mural studies, with students completing assignments during a three month period in their home country. Following that, students are required to attend a three week intensive residential block at The University of Auckland.

The three-week residential component of the course has just concluded. Participants spent a week at the New Zealand Aluminium Smelter and were in Auckland for the final week of their residential component.

Associate Director of the Light Metals Research Centre, Associate Professor Jim Metson, credits the success of the course to the strong support from industry, the involvement of international expert lecturers and the international research reputation of University staff and the Light Metals Research Centre.

Kick Start to Engineering



2005 Kick Start Scholarship recipients.

A First Semester Orientation Lunch hosted by the Faculty of Engineering Dean, Professor Peter Brothers was the event for 28 Part 1 Engineering students to be presented with a total of more than \$50,000 in scholarships.

The Faculty of Engineering introduced the Kick Start Scholarship programme in 1999 to help first-year Engineering students make the transition from secondary to tertiary study by providing a financial grant.

The \$2000 grant will assist with initial set-up costs such as textbooks, fees and accommodation. This year the Scholarships attracted more than 250 applications from all over New Zealand.

Professor Brothers says the Faculty is pleased to be able to reward outstanding students embarking on their Engineering careers.

Researchers Welcome New Equipment

Scientists from research institutions, universities and industry will benefit from two major sophisticated pieces of equipment, worth more than \$1 million each, bought by The University of Auckland.

An Environmental Scanning Electron Microscope (ESEM) and an X-ray Photoelectron Spectroscope (XPS) were launched on Thursday March 10 by the Minister for Research, Science and Technology, the Hon. Steve Maharey. Both machines are the only ones of their kind in the country.

Faculty of Engineering Dean Professor Peter Brothers says he is delighted with the addition of the equipment to the Faculty's existing research facilities.

"They are both significant purchases and will help advance research in many areas, offering an even wider range of research and learning opportunities for our staff and students.

"In addition, we welcome the opportunity to work with researchers from Crown Research Institutes, other universities and industry, who will use the equipment in their work," says Professor Brothers.

Dr Bryony James, Director of the Research Centre for Surface and Materials Science, which will house the equipment, says it will be used by food and biological scientists, as well as surface and material scientists from around the country.

The ESEM is an advanced version of conventional SEM microscopes, which



(L-R) Dr Bryony James, Hon. Steve Maharey and Vice-Chancellor Stuart McCutcheon in the ESEM lab

are relatively commonplace having been commercially available since the 1960s. Unlike the older style machine, which requires samples to be placed in a vacuum chamber, the ESEM can examine materials in their natural state.

"This means we can now research wet items such as blood, water, apple, cheese, or adhesives in water vapour or other gasses because the ESEM has overcome the problem of moisture evaporating.

"This will allow us to do more advanced research in food technology and other areas. For instance, we could look at what makes dough rise or gluten react, or the consistency of cheese at different times of production."

The second item, the XPS, was bought to replace the one-and-only machine of its kind in New Zealand - a 17-year-old XPS at the University. Available to a wide range of industry and university researchers, the XPS is used to examine the surface chemistry of materials, providing detailed analysis of the top ten atomic layers.

"It gives us more information about what is happening on the surface of a material - for example why there is a stain on a plastic or why a glue joint is failing. It will be a fantastic item for helping to solve industry problems with adhesion, corrosion and other issues."

The ESEM and the XPS, both fully-funded by The University of Auckland, were made-to-order and shipped to New Zealand from Europe.

Engineering '...5' Reunion Weekend and Annual Alumni Dinner 9 - 11 September 2005

The Faculty of Engineering will host the annual Engineering Reunion Weekend (for all '...5' year graduates - those who graduated in 1955, 1965, 1975, 1985, 1995) and the Annual Alumni Dinner over the weekend 9 - 11 September 2005. The weekend includes a Cocktail and Registration Reception hosted by the Dean, Professor Peter Brothers, on Friday; a number of optional activities and tours occurring over the weekend - from a wine trail on Waiheke Island to tours of the University's City and Tamaki campuses, Faculty of Engineering and the old Ardmore campus; and the gala event of the weekend - the Annual Alumni Dinner on Saturday night.

Please note all Engineering Alumni, Friends and Family are invited to attend and partake in the weekend.

Please direct all enquiries regarding the '...5' Reunion Weekend and / or Annual Alumni Dinner to:

Sharon Andersen, External Relations Manager
Faculty of Engineering
The University of Auckland, Private Bag 92019, Auckland
Phone: (+64) 9 3737599 ext. 88225
Mobile: (+64) 025 457 607
Email: s.andersen@auckland.ac.nz

To receive information regarding the '...5' Reunion Weekend and Annual Alumni Dinner please complete the included form and forward to Sharon Andersen.