NTU Spirit has gone and done it again! After soaring to success at last year’s soft launch of the annual NUS-NTU Dragon Boat Race, it clinched the much-coverted Prime Minister’s Challenge Trophy at stake at the inaugural Race this year.

Held on the first day of the International Dragon Boat Festival 2000, the 1000m race was keenly competed from the start, causing visible excitement at the Marina Promenade “grandstand”. When the dragon boats first heaved into sight from the Boat Quay area, the NUS team had a slight lead. The NTU team, however, at the double, overtook the rival team about 150m after the Esplanade Bridge to complete the race in a time of 5 minutes and 52 seconds – five seconds faster than their opponent.

In seventh heaven after the win, Team Captain, Desmond Goh, a second-year Nanyang Business School student, said: “We did a very good job because we trained very hard after the exams. All of us put in our heart and soul to win this race.” Also brimming proudly after the race was NTU President, Dr Cham Tao Soon, and the other NTU staff and student supporters.

Coordinated paddle power and strategy – that’s behind the many titles won by the 40-member NTU Dragon Boat Team at various Inter-Varsity-Polytechnic and National races since 1987. For this race, the team trained five days a week in the weeks leading up to the showdown. Their coach is Mr Michael Ong, an NTU alumnus who also wears the twin hats of Singapore’s National Team Captain and Assistant Coach.

Prime Minister Goh, who first mooted the idea for a yearly traditional dragon boat race between the top two local universities, said: “I hope this event will develop into a keenly followed tradition, similar to that of the annual boat race between the Oxford and Cambridge Universities.” Let’s hope the NTU Spirit rises to the occasion every year!

A proud moment with Prime Minister Goh Chok Tong

The trophy is an abstract interpretation of the speed, water, rhythm and wave forms in dragon boating integrated to depict a stylised representation of a dragon in a forward thrust. It is designed by prominent local artist and former National Institute of Education lecturer, Elsie Yu.
School of Applied Science reorganised into two new Schools

The School of Computer Engineering (SCE) and the School of Materials Engineering (SME) will be in operation with effect from AY 2000/2001

The reorganisation of the School of Applied Science arises from a recommendation by Sir Eric Ash, the distinguished former Rector of Britain’s prestigious Imperial College of Science, Technology and Medicine, who came to review NTU’s progress in academia and research last September on the invitation of NTU President, Dr Cham Tao Soon. Sir Eric Ash conducted his first review of the University in September 1996.

The reorganisation is timely as both disciplines – computer engineering and materials engineering – have become quite large in terms of staff and student numbers. Furthermore, having two separate Schools will allow each discipline to develop its own distinct identity and to be more focused and flexible in teaching and research activities.

Prof Harcharan Singh and Prof Fong Hock Sun are the Deans of SCE and SME respectively. The SCE comprises the Divisions of Computing Systems (CS), Software Systems (SS) and Information Studies (IS) that are responsible for the BEng (CE), MPhil and MSc (IS) programmes. The SME consists of the Division of Materials Engineering (ME) that is responsible for the BEng (ME) and MPhil programmes. Both Schools also offer research programmes leading to the MEng, MASc and PhD degrees. The two new Schools will continue to share Blk N4 until the completion of the new Materials Engineering building in about 2 years’ time.

First e-catalogue of Asian teaching case material

In August 2000, NTU’s newly established Asian Business Case Centre will be launching a first-of-its-kind e-catalogue on its website — Asiacase.com — to encourage the use of teaching cases on Asia and Asian businesses by faculty and students

Asiacase.com has been created to meet the growing use of case studies as a pedagogical tool in business and management teaching, and to support the curriculum revamp initiated last year at the Nanyang Business School (NBS). It provides several services, including an e-catalogue of teaching case information, a database of case collections and publications, a platform for learning and exchange between instructors and students, and a virtual meeting place for case writers and publishers.

One unique feature of the e-catalogue on Asiacase.com is a search and information service to users which cuts short the usual laborious process of finding a case by going from site to site. Searching a database of some 800 case profiles, users can locate cases relevant to their needs by scanning information on cases housed in the world’s key case collections and publications in a single search session. After that, they will be directed to the publication sources for more information and to buy their cases straight from the original case collection.

“We want to provide a one-stop global teaching resource on Asian business that is of interest to teachers, students and any business manager,” said Prof Neo Boon Siong, Dean of NBS. About $500,000 is being spent to develop the portal.

To promote case study teaching and writing in Singapore and Asia, NBS is collaborating with the Richard Ivey Business School – the top Canadian Business School and the world’s largest producer of Asia-Pacific case studies. The tie-up includes the appointment of a case writer, based at NBS, who will research and publish business cases on Asia. The Lee Foundation has generously donated $1.9 million to support this partnership over a five-year period.

The Asian Business Case Centre aims to publish more Asian case studies written by NTU faculty and associates from other universities and welcomes your relevant contributions. It also looks forward to partnering centres and individuals keen on developing and using Asian teaching case writing.

Send an email to asiacase@ntu.edu.sg or surf to http://Asiacase.com (wef August 2000) for more information.
$25 million MicroFabrication Laboratory launched

The state-of-the-art silicon research facility will provide hands-on training in semiconductor wafer fabrication to meet the manpower needs of the booming microelectronics sector in Singapore

The NTU MicroFabrication Laboratory (MFL) was officially launched on 24 March 2000 by Mr Teo Ming Kian, Chairman of the National Science and Technology Board (NSTB). Its facilities will be leveraged on in the training of specialised manpower for the local semiconductor industry which produces microchips and other innovative processing technologies for new-age mobile phones, handheld devices, computers and network equipment.

In 1999, the semiconductor industry in Singapore registered a growth of about 22% which exceeded the worldwide growth of 17.6%. Local and foreign investments in wafer production facilities in Singapore have also increased. “To ensure the continued growth of this industry in Singapore, it is imperative that Singapore produces research scientists and engineers with the relevant expertise, and establishes the technology infrastructure to support R&D activities in semiconductor technology,” said Mr Teo, at the launch. NTU is committed to training undergraduate and postgraduate students in various aspects of microelectronics for the local semiconductor industry. In this regard, the recently launched Master of Science programme in Microelectronics at NTU is timely. (See page 7)

The MFL is the result of funding by the NSTB, Economic Development Board, Ministry of Education, and NTU. It has also received support in the form of equipment from Applied Materials (South East Asia) and Hewlett Packard (Singapore).

University-industry cooperation also received a boost at the launch when a Memorandum of Understanding was signed between NTU and CET Technologies Pte Ltd on a sensor research collaboration that will draw extensively on the new MFL facilities. More information on the MFL is available at http://www.ntu.edu.sg/eee/labs/mfl

The MicroFabrication Laboratory, a 330 sq m class 100 cleanroom facility located in the School of Electrical & Electronic Engineering (EEE), is believed to be the first-of-its-kind university facility in the region and one of the best in the world. It supports a CMOS baseline process on 6-inch silicon wafer and has state-of-the-art facilities that support fabrication of an Integrated Circuit (IC) from the bare silicon wafer stage right up to the final product. The MFL will be the key training facility for the BEng, MEng, MSc, MPhil and PhD programmes in microelectronics. Working professionals from the wafer fab industry will also be trained there in various areas of microchip fabrication. More information on the MFL is available at http://www.ntu.edu.sg/eee/labs/mfl

Microelectronics: expert insights at public talks

In conjunction with the official launch of the MicroFabrication Laboratory, a series of public talks was held on 25 March 2000 at NTU under a common theme “Microelectronics in the New Millennium”. The talks, supported by the NSTB, were delivered by three eminent Visiting Professors at NTU, all international experts in the field of microelectronics – Prof James C M Hwang and Prof Vijay K Arora from the US, and Prof Yao Xi from China. Topics like heterostructures, ceramics and technopreneurship were explored to stir up in Junior College and Polytechnic students an interest in microelectronics.
First Cisco Academy Training Centre in ASEAN at NTU

IDA and Cisco funded, the Centre will train instructors for the Cisco Networking Academy Programme and monitor the quality of training offered by Cisco Networking Academies in the region.

To equip infocomm manpower with critical networking skills for the growing info-communications technology industry in Singapore, NTU, the Infocomm Development Authority of Singapore (IDA), and Cisco Systems, Inc signed an agreement on 9 May 2000 to collaborate on the setting up of ASEAN’s first Cisco Academy Training Centre (CATC) at NTU.

The agreement was signed by Dr Kaizad Heerjee, Assistant Chief Executive (Online Development), IDA; Prof Er Meng Hwa, NTU Deputy President and Dean of the School of Electrical and Electronic Engineering (EEE); and Mr Lou McElwain, Managing Director for ASEAN, Cisco Systems.

The CATC, hosted by the School of EEE, will support and manage up to 30 Regional Academies which will in turn support up to 10 Local Academies. These academies will offer the Cisco Networking Academy Programme (CNAP), a comprehensive e-learning system that covers the principles and practice of designing, building and maintaining computer networks. While the Local Academies only prepare students for Cisco Certified Network Associate (CCNA) certification, the CATC will also offer an advanced CNAP which will graduate Cisco Certified Network Professionals (CCNPs). CCNP-qualified professionals are on track to becoming highly regarded Cisco Certified Internetwork Experts (CCIEs) who typically earn about US$150,000 a year in the US.

The CATC began training its first batch of instructors in March 2000, before its official launch. Six more instructor classes will be conducted this year, while classes for the CCNP programme will start in 2001.

NTU will leverage on Cisco’s expertise to develop an expandable and scalable e-learning framework for professors and students, both local and overseas, to exploit IT for learning and interaction.

Innovate, then commercialise your inventions

A new University department, the Innovation and Technology Transfer Office (ITT Office), is where NTU staff and students can go to protect and exploit their inventions, and to reap the commercial benefits of their technology.

Technology transfer
If you have an invention, talk to the ITT Office for intellectual property protection. The Office also provides incentives to facilitate technology licensing and startups. Licensing is a sensible and cost-effective way of bringing a new product to the marketplace and involves granting rights to manufacturers the use of your ideas in their products in return for royalties. This process can be made easier through links the Office has established with the industry and private sector. Start your own spin-off company, or do it with NTU Ventures Pte Ltd. Help is given from the idea stage to the investor-funding stage.

Environment and infrastructure
No longer just a mini-science park, the Innovation Centre has widened its portfolio to include the incubation of new technology startups. Tenants can enjoy strategic proximity and ready access to state-of-the-art facilities within the campus. The opportunities for close networking with the various Schools and Centres of Excellence also promote synergistic collaboration. Startups can look forward to additional services such as mentorship, professional advice, and assistance in securing angel funding. The ITT Office will help establish a technopreneural community on campus comprising not only staff, students and alumni, but also the private sector.

Technopreneurship development and training
Technopreneurship training and research are within the mission of the ITT Office. Gain greater knowledge of entrepreneurial-related subjects by participating in talks and seminars featuring the views of both local and foreign experts. These free activities are open to all NTU staff, students and the public. Students will also benefit from the joint activities of the Office and a student society, the Student’s Initiative for Technopreneurship (SIFT). A 6-room TechnoGarage has been created at the Innovation Centre for student technopreneurs to incubate their innovations/inventions.

For more information, please contact Ms Goh Bee Dee, Assistant Director of ITT Office (email: bdgoh@ntu.edu.sg; tel: 790 4814; fax: 792 1737).
$12.4 million boost for plastics engineering

Cutting-edge research in plastics design and analysis can now speed off the runway at NTU, thanks to Moldflow’s generous donation of 50 sets of simulation software and five years of support and upgrades.

Talk about plastics and it is not only your lunch box or your child’s drinking cup that comes to mind. Plastics these days include technologically advanced electronic components and products, medical and healthcare devices, and more – all made using the injection moulding process. Plastics engineering will become increasingly important in view of the increasing demand for handphones and laptops, all of which have plastic casings.

With the plastics industry being one of the fastest growing industries, it is timely that NTU has formalised a research collaboration with Moldflow Corporation, the world technology and market leader in plastics simulation software. Moldflow’s $12.4 million academic grant to NTU, its largest single donation to date, comprises 50 sets of Moldflow Plastics Insight (Moldflow’s CAE software for in-depth analyses) and five years of support and upgrades. NTU students will now have access to leading-edge resources and software tools for plastics engineering.

The collaboration, formalised on 26 May 2000, builds on established research ties between Moldflow and the School of Mechanical and Production Engineering (MPE) dating back to 1998, when efforts were made to develop the basic concepts and algorithms for optimising plastic injection moulding. This project has since expanded into a million-dollar programme, with support from Moldflow and the Ministry of Education.

Optimisation through computer simulation is a requirement for the complete design and manufacture of high-quality plastics. This partnership paves the way for the advancement of plastics simulation technology and the education and training of plastics engineers to meet the world demand for reliable, predictable, and efficient delivery of plastic products.

Assoc Prof Lam Yee Cheong from the Division of Manufacturing Engineering, MPE, has made significant headway in plastics simulation technology. Thanks to his research work, the plastics industry will soon be churning out plastics of supreme structural integrity and durability, and at a lower cost to boot.

The secret of Prof Lam’s success lies in a superior plastics simulation technology developed over three years that presents for the first time an algorithm for flow and structural optimisation.

Most plastic parts today are created by the injection of molten plastic into a mould cavity. If the plastic flow pattern is not ideal, the plastic parts created will have structural defects or soon become distorted. Prof Lam’s automatic algorithm allows the plastic flow pattern to be simulated and optimised to minimise such flaws. Another challenge in plastic injection moulding is the creation of ribs in the plastic structures to strengthen them.

While current technology can only simulate the optimum size of the ribs when their locations are known, the algorithm developed by Prof Lam can simulate both the optimum location and size of the ribs – a world’s first. This project represents a major leap from current technology – from telling the designer and engineer what has gone wrong to how to optimise the process.

The project got off the ground when Moldflow, the leading plastic injection software company with 90% of the world’s market, sponsored NTU a Research Fellow and free research software in 1998.

If commercialised, the simulation software will enable high-quality plastic injection moulded containers and precision parts like plastic lenses to be produced quickly. And the new durable plastics hold the promise of never warping or mis-shapening over time. “Plastic containers will remain airtight even after long usage,” revealed Prof Lam.

Currently, Prof Lam and a research team at NTU are doing work on cooling optimisation and the integration of CAD (Computer-Aided Design) and CEA (Computer-Aided Engineering) for plastic injection moulding. The researchers hope to reduce significantly the time needed, from conceptualisation to final production, to turn out cheap but high-quality and functional plastic products.

NTU research holds the key to the best and cheapest plastics in the world

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Advances made in small satellite technology have resulted in ever-shrinking satellites, and soon, we will have constellations of these tiny satellites in space for disaster monitoring and data collection, said prominent UK professor, Martin Sweeting, during a public lecture at NTU on 15 May 2000.

Prof Sweeting’s lecture, which drew a capacity crowd, also covered design and development work on X-Sat, the current micro-satellite project being undertaken at NTU’s multidisciplinary Satellite Engineering Centre (see inset).

Prof Sweeting, OBE, FREng, Managing Director and Chief Executive Officer of the Surrey Space Centre at the University of Surrey, was in NTU from 15 – 21 May 2000 as the first Michael Fam Visiting Professor. He has played a pivotal role in the development and commercialisation of small satellites. For example, he pioneered the concept of “cost-effective spacecraft engineering” applied to small and inexpensive micro-satellites two decades ago with the successful design, construction and launch of the first British micro-satellite, UoSAT-1. He is also the architect of an innovative “modular multi-mission micro-satellite” design used successfully on nineteen spacecrafts built by Surrey Satellite Technology Limited (SSTL), a commercial company of the University of Surrey which he set up in 1985. Surrey’s first nano-satellite was launched recently.

NTU collaborated with SSTL on its first mini-satellite mission in April last year when the 325kg UoSAT-12 carrying NTU’s L/S band Merlion communications payload was successfully launched into orbit. The UoSAT-12 has been producing high quality earth images for study.

X-Sat is a 130kg LEO micro-satellite designed primarily for earth imaging and earth observation. The detection of forest fires in the Asean region and oil slicks around Singapore will be of special interest. This application requires the creation of a new and sophisticated optical and infrared imaging (camera) system in addition to the design and development of a highly stable and maneuverable spacecraft. Work on X-Sat will be undertaken jointly by specialist groups from the Schools of Electrical and Electronic Engineering, Mechanical and Production Engineering and Computer Engineering. It is targeted for completion in 2002.
More MSc programmes

MSc in Information Studies
- with special track designed for school teachers
This new full-time MSc (Information Studies) programme aims to harvest a new breed of highly demanded multidisciplinary information professionals with the skills to develop and deliver value-added information and products and services in the new digital economy. It complements the existing part-time programme, offering a new curriculum with two main areas of concentration – in Information Management and Systems, and Library and Information Science. A new specialisation in School Libraries and Media Resources has been specially designed to provide professional training for Heads of Divisions, Library Coordinators, Audio Visual Specialists and Teacher Librarians of the Media Resource Libraries in Schools. Find out more @ http://www.ntu.edu.sg/registrar/postgraduate/coursework/mscinfo.htm

MSc in Communications Engineering
This two-year part-time programme aims to upgrade the knowledge and skills of practising engineers and information technologists in the generic area of communications engineering. There are two specialisations in this programme – Telecommunications, which focuses on wired and wireless communications concepts, techniques and systems, and RF Engineering, which is oriented towards RF and microwave techniques and design for a particular sector of the wireless and mobile communications industry. Find out more @ http://www.ntu.edu.sg/registrar/postgraduate/coursework/msccommeng.html

MSc in Communication Software & Networks
Offered on both a full-time and part-time basis, this programme aims to equip graduates with leading-edge knowledge in networking and software engineering for the infocomm industry. It draws on the unique inter-disciplinary nature of object-oriented software engineering and computer networking, and exploits a holistic approach that integrates classroom lectures with software programming, networking laboratories and project management. Find out more @ http://www.ntu.edu.sg/registrar/postgraduate/coursework/msccommsoftware&networks.html

MSc in Microelectronics
This part-time programme will produce highly-skilled semiconductor professionals for the wafer fabrication industry. It has several unique features, including a compulsory hands-on workstation-based training course in which students utilise industrial-standard software systems to design and simulate the complete microchip design and fabrication process; the opportunity to cover research areas in the emerging non-silicon based semiconductor industry; and the chance to undergo complete training in various aspects of wafer fabrication in NTU’s new state-of-the-art MicroFabrication Laboratory. Find out more @ http://www.ntu.edu.sg/eee/ee66/MSc.htm

Singapore-MIT Alliance programme

Innovation in Manufacturing Systems and Technology
Beginning in July 2000, this new full-time multidisciplinary programme is the first Singapore-MIT Alliance (SMA) programme to be hosted at NTU. It trains students to be leaders for existing and emerging manufacturing enterprises and research establishments. The unique feature of this programme is that equal emphasis is given to both the business and technology aspects of manufacturing. In addition, it focuses on innovation and entrepreneurship. Coursework integrates the physical fundamentals of processes and machines with the operational flow problems of the factory. Students on this programme can pursue a Professional Master’s degree, a Research Master’s degree or a Research Doctorate degree.

Only 40 top students from Asia have been admitted into this programme, which offers a full scholarship to all its students. MIT professors have noted that the quality of the students is comparable to those who are admitted into MIT. A highlight of the programme is a two-and-a-half week study and research stint at MIT. Research supervision and coursework are jointly conducted by the academic staff of NTU and MIT, with state-of-the-art IT and communications technology allowing for seamless interaction with MIT professors.

The Singapore-MIT Alliance was established in November 1998 between the National University of Singapore (NUS), NTU and the Massachusetts Institute of Technology (MIT) to establish a world class centre for graduate education and research in engineering, and to implement a new paradigm of global interaction including interface with business and industry. The SMA Office on the Yunnan Garden Campus is located at the North Spine (N2-B2C-15). Find out more @ http://web.mit.edu/sma/

Five new Final Year Specialisations

Five new Final Year Specialisations will be offered in the Bachelor of Engineering degree programme from July 2000 - Infocommunications, Digital Signal Processing, Photonics, Aeronautical Engineering, and Energy and the Environment. They reflect the growing demand for courses which provide training for several key high-growth industries. The first three specialisations are offered by the School of Electrical and Electronic Engineering and the last two, by the School of Mechanical and Production Engineering.

The BEng programme at NTU is broad-based. All students undergo a comprehensive curriculum in the first 3 years encompassing major areas of engineering before specialising in the 4th year. This provides a degree of versatility that enables some of the graduates to branch out into different areas and jobs not yet created today.
Going all the way with dragon boating power!

(continued from page 1)

The battle of wits was keenly fought at the 7th ALL-ASIANS Intervarsity Debating Championship, but NTU’s student debaters successfully took on some of the best in the region.

About 68 teams from 28 universities pitted their verbal skills against one another at the Multi-Media University in Malacca from 15 – 22 May 2000, debating on topics such as granting asylum to illegal immigrants and whether the state should provide health care services for free.

In top form was NTU Team 1, consisting of fourth-year Communication Studies student, Ng Boon Yian, third-year Computer Engineering student, Rajesh Krishnan, and second-year Computer Engineering student, Amit Bhatia. It was ranked number one out of 62 teams from 27 universities at the end of three days of seven preliminary rounds – a first for Singapore, and a major feat, considering that Boon Yian is a “seasoned” debater.

In the overall rankings of individual speakers, Boon Yian was ranked number two and Amit, number five, out of a total of 186 debaters. “I’m delighted that I’m ranked second, especially since this is a final tournament for me,” said Boon Yian, who also received news of another major achievement recently – a First Class Honours degree.

Boon Yian began debating competitively in her second year at NTU, while this is Amit’s first international outing.

NTU debaters for international tournaments are selected from the NTU Debating Squad. Assoc Prof Khong Chooi Peng, the coach for the Squad, revealed that the debaters trained six times a month, usually between 7.30pm and 11.00pm, for the ALL-ASIANS. Their perseverance and dedication, however, have clearly paid off.

The Squad is currently working very hard at making a bid to host the Australasians (Australia, New Zealand and Asia) debates in July 2001 in NTU.

The Squad’s commendable performance at the ALL-ASIANS has proven that it is poised to keep NTU at the forefront of debating in Asia. Quipped Prof Khong: “Considering that two of the debaters are (computer) engineers-in-the-making, this proves that not all engineers are usually at a loss for words!”

NTU debaters shine at 7th ALL-ASIANS

Two student debaters were ranked 2nd and 5th out of a total of 186 debaters from 28 universities in Asia.

The scales were tipped in favour of the NTU team, which had 15 national rowers on its race team of 24. With the NTU flag flown high, the NTU Spirit becomes invincible and soars ahead!

We’re the champs!
A great idea travels

A robust tourism price index model developed by three recent graduates has its merit affirmed twice — in an international competition where it has bagged the top prize, and at home, where it’s being adopted by the Singapore Tourism Board.

Accountancy majors, Elaine Tan, Jason Le, and Cecilia Neo, while brainstorming for their Final Year Project (FYP) last year, hit upon a great method of analysing and measuring the price competitiveness of a tourist destination. They have come up with a powerful tourism price index model that is not only flexible but expandable.

What’s more, in their bid to answer the question “Is Singapore an expensive place to visit?”, they researched extensively, studying past work on similar price indices, and inadvertently revived a study on tourism consumer price that has lain dormant at the Singapore Tourism Board (STB) for over 10 years. “No doubt the research would have to be refined to be used by the STB, but in any case, it has farly exceeded what you would expect from student work,” said Assoc Prof Stephen Wayne Litvin, the Nanyang Business School lecturer who supervised the students’ FYP.

Adding another feather to their cap, the trio’s Final Year Project “Constructing a Tourism Price Index for Singapore” was also the basis for a paper that claimed the top prize in the prestigious Travel and Tourism Research Association (TTRA) undergraduate project competition. The prize, the J Desmond Slattery Undergraduate Student Award for 2000, recognises outstanding undergraduate student research and comes with a US$700 cash prize and a US$300 travel allowance.

The trio was invited to present their award-winning paper at the 31st TTRA Annual Conference, a premier international tourism conference held in June this year.

Elaine is a top student who received the Lee Kuan Yew Gold Medal last year for her outstanding academic track record and for bagging a First Class Honours for her BAcc degree.

10 recognised for good teaching

They may come from very different backgrounds and specialisations, but one similarity binds NTU’s top teachers — the ability to make a great impact on those they teach.

On 15 April 2000, at LT19, ten NTU lecturers received their teaching “Oscars” from NTU President, Dr Cham Tao Soon. For their outstanding teaching performance the past year, each of them received the Teacher of the Year Award which is regarded by the university teaching community as the highest honour to be bestowed on any teaching staff at NTU.

As teaching methods and approaches evolve with the times, the aim of the award, which is into its seventh year of presentation, remains unchanged: it seeks to acknowledge and encourage excellence in teaching through the use of innovative and effective teaching techniques.

The ten winners were honoured at a brief award presentation ceremony held in conjunction with the Annual Staff Seminar on Teaching, where Dr Cham acknowledged them as “colleagues of ours who have done an excellent job in instructing and inspiring their students.”

Observing the trend of increasing student intake, Dr Cham advised: “If we are to improve, we need to try out new ideas, new techniques and devices that could be adopted to teach the rapidly increasing number of students in NTU.” And this year’s teaching seminar, themed “Teaching Large Classes”, certainly equipped NTU’s teaching staff with an armoury of useful tips, thanks to the helpful contributions of the three speakers — Assoc Prof Low Guat Tin from the School of Education, Mrs Kok-Kwok Wan Yee from Temasek Polytechnic, and Assoc Prof Lee Yong Tsui from the School of Mechanical and Production Engineering.
On 26 May 2000, NTU’s School of Communication Studies (SCS) signed a Memorandum of Understanding (MOU) with the School of Journalism at the University of Missouri-Columbia, USA. The world’s oldest journalism school, the Missouri School of Journalism offers one of the best journalism programmes in the US. The two institutions will encourage direct contact and cooperation between their faculty, administrative staff and students.

“We’re more excited about this partnership than any other we’ve formed. This collaboration with NTU is a key part of our global strategy,” said Prof Dean Mills, Dean of the Missouri School of Journalism. “Singapore and NTU represents where we’re headed in the 21st century,” he added.

SCS Dean, Prof Eddie Kuo, also welcomed the new relationship with the prestigious journalism school. “As one of the youngest of the major communication programmes in Asia, we are honoured to establish this link with this well-established institution. Both our students and faculty will benefit from this collaboration,” he said.

Under the MOU, four student exchanges will take place each academic year, with the first batch of SCS students heading for Missouri in January 2001. The Missouri School, which takes pride in the hands-on “Missouri Method” of journalism education, is so well established that it even has its own network television station on campus.

SCS also announced the appointment of Dr John Merrill, Professor Emeritus from the Missouri School of Journalism, as its new Wee Kim Wee Professor from June 2000. Dr Merrill is one of the most influential journalism educators in the United States. Few students graduate from journalism programmes in the US without reading at least some of his books on journalism issues.

The Nanyang Business School (NBS) has begun a three-year collaboration with the Accountancy Department of the University of Illinois at Urbana-Champaign (UIUC) which will result in the development of new instructional approaches to undergraduate accountancy education at NTU.

Both UIUC’s Accountancy Department and Accountancy undergraduate programme have been ranked number one in the US, according to sources like the Public Accounting Report and US News and World Report. Several years ago, the UIUC Accountancy Department undertook a major revamp of its undergraduate curriculum, titling the new curriculum “Project Discovery” (PD). In PD, active learning methods are used to cultivate critical thinking abilities, teamwork skills, oral and written communication skills, as well as conceptual accountancy content. Current research findings are also integrated into the teaching curriculum.

“Walk into a PD class and you will see students embroiled in earnest discussions over how best to evaluate risk and performance related to a business contract. Judging from the absence of rote answers, you might think these students were juggling issues in the real workplace,” said Prof Ira Solomon, KPMG Distinguished Professor of Accountancy and Associate Head of the Accountancy Department of UIUC.

Under the collaboration, UIUC professors will visit NTU to share their instructional approaches with Nanyang Business School professors, while the latter will also get a chance to catch their American counterparts in action in Illinois.

Empirical findings from employers and graduates show that UIUC graduates trained under the PD approach possess skill sets and knowledge superior to UIUC graduates trained under the traditional approach; PD graduates are not only more enthusiastic and confident at work but are also more receptive to new challenges. It is certain that the NTU-UIUC collaboration will result in a world-class accountancy education for NTU students.
NTU has a strong tradition in environmental engineering R&D, enjoying active collaborations with many established universities, regulatory agencies and key players in the industry. Stanford University’s EES has been ranked first among environmental engineering programmes in the US for the past 15 years. Both institutions will promote regular exchange of academic and research staff who will conduct seminars and participate in joint research activities. They will also share resources for key research projects in environmental technology.

It is hoped that the partnership will result in the development and commercialisation of novel homegrown environmental technologies, the enhancement of Singapore’s environmental management skill base, the development of reputable environmental education programmes, and the consolidation of Singapore’s position as a premier hub for environmental technology. Industry players will also benefit from the tie-up through technology-sharing, joint penetration of regional environmental technology markets, and access to know-how and resources in the US.

Advancing environmental engineering research

Research aims to improve Singapore’s environment

The NTU-Stanford research projects are concerned with improving the management of Singapore’s strategic water, land and air resources, and include:

- Improving air quality in air-conditioned offices and buildings
- Finding ways of treating membranes used in water purification processes such as desalination and waste-water recycling
- Developing new biotechnology applications, e.g. special strains of bacteria that can clean water or remove pollutants from the soil
- Dealing with water scarcity, e.g. recycling waste water by pumping it through the ground

Building constructive ties with Taiwan U

NTU will pursue joint research in rock engineering, environmental engineering and construction management with the National Taiwan University in Taipei

A new, strategic collaboration was recently established with National Taiwan University (NTUT) – a top University in Taiwan. NTU President, Dr Cham Tao Soon, was in Taipei on 27 March 2000 to sign the Memorandum of Understanding (MOU) with the President of NTUT, Prof Chen Wei-Jao.

The MOU was signed by Prof Cheong Hee Kiat, Dean of NTU’s School of Civil and Structural Engineering (CSE), and Prof Clyde B Tatum, Chairperson of Stanford University’s Department of Civil & Environmental Engineering. The signing, at Stanford University’s campus in California, was witnessed by Prof Tay Joo Hwa, Director of the ENV-NTU Environmental Engineering Research Centre (EERC), Prof James O Leckie, Director of Stanford University’s Environmental Engineering and Science Programme (EES), and staff members from both institutions.

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Research with Stanford University, home to the top US environmental engineering programme, will augment NTU’s established strengths in environmental engineering

NTU has tied up with Stanford University to carry out research in environmental engineering. The Memorandum of Understanding (MOU) strengthens the good relationship that already exists between the two institutions and represents a commitment by both to continue and enhance active co-operation in environmental engineering research and education.

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Moving MPEG and digital TV technology forward

New paradigms of interactive multimedia and the transmission of digital TV over the Internet — these will transform the way we work and play in the future.

Watch out for the interactive goggle box of the future! While watching your favourite cooking programme, you can print out the recipes on your home desk jet or order the ingredients from the grocery store – all instantly at the click of a button on a remote or smart pad. Missed that Beckham goal-scoring free-kick during a live soccer match on TV a minute ago? No problem, just request for an instant replay. Welcome to the future of digital television.

This new paradigm in the multimedia and entertainment world will soon be a reality with the steady advancement of MPEG and digital TV technologies. Already, the potential impact of these technologies on the consumer market is stirring up worldwide commercial interest.

To spearhead this technology development, the Centre for Signal Processing (CSP) at NTU joined forces with Santa Clara University’s (SCU’s) School of Engineering on 24 April 2000 to set up a testbed in CSP that will allow researchers to innovate and develop solutions for future digital broadcast and broadband interactive services and applications. One potential R&D project investigates the conversion of digital TV signals into IP (Internet Protocol) streams and the transmission of these over the Internet. Since 1988, CSP researchers have been working with their counterparts at SCU’s School of Engineering to develop expertise in MPEG 4 technologies.

The tie-up with the oldest institution of higher learning in California will serve as a strategic link for CSP. Besides its renowned research expertise, SCU is also strategically located in the heart of Silicon Valley and has close links with many companies there. The Director of CSP, Assoc Prof Ser Wee, said that the facility and, perhaps, the collaboration programme could be opened up in future to include other research and industry players to boost the impact to the industry.

Building a world-class MMIC programme

Phase two R&D aims to develop advanced Monolithic Microwave Integrated Circuit (MMIC) technology applications for the booming wireless communication market

Recognising the importance of Monolithic Microwave Integrated Circuit (MMIC) technology particularly in the huge wireless communication market, the National Science and Technology Board (NSTB) and DSO National Laboratories funded a three-year multi-million dollar MMIC (Phase 1) programme at NTU in 1996 to spearhead the development of MMIC technology in Singapore. Today, NTU is right on track in developing itself into a world-class MMIC R&D centre.

The clean room/characterisation lab in the Microelectronics Centre (MEC) at the School of Electrical and Electronic Engineering (EEE) has been expanded into a state-of-the-art R&D facility with complete in-house capability for MMIC fabrication. On the technology front, many milestones have been achieved, including the demonstration of the world’s first metamorphic InP/InGaAs Heterojunction Bipolar Transistor (reported at the IPRM2000 international conference in USA), the development of Singapore’s first submicron (0.25µm) PHEMTs, and the creation of Singapore’s first MMIC amplifier using only in-house capabilities at NTU (in collaboration with DSO National Labs). The MMIC Projects group has also produced more than 50 international and local journal and conference papers, and has trained close to 50 undergraduates, postgraduates and engineers from the local industry.

The group has formed strong partnerships with Agilis, Centre for Wireless Communications, DSO National Labs, Institute for Microstructural Sciences in Canada, Oki, University of Duisburg in Germany, and University of Surrey in UK. Within NTU, it is collaborating with the Global Positioning Systems Centre, the Division of Circuits and Systems and the Photonics Research Group. The joint projects focus on wireless communications, power MMICs, millimeter-wave MMICs, III-V MEMS and RF photonic integration.

Phase 2 R&D is now well underway, with a total funding exceeding $7 million secured for 1999/2000. One of the distinct differences between the nature of Phase 1 and Phase 2 funding is a shift in emphasis from basic MMIC process capability build-up in Phase 1 to MMIC technology applications in Phase 2. Two major Phase 2 projects which exploit the MMIC technology developed in Phase 1 involve MMIC product and process development and III-V MEMS/RF photonic integration.
Indigenous perspectives on Asian business

In September 1999, the Asian Commerce & Economic Studies Centre (ACES) and a law firm, Colin Ng & Partners (CNP), formed a tie-up with a view to enhancing relations between Chinese participants on the MSc (Managerial Economics) programme and industry practitioners. The collaboration resulted in the "NTU-CNP" unit of ACES, which recently launched the Asia Business Series of seminars.

The first seminar “Investing in Korea – the Trends and Prospects for IT, Telecom and Knowledge-based Industries” was held on 30 March 2000 at the NTU Executive Centre and attracted an audience of 25. It was a privilege to have Albert Winsemius Professor, Prof Oum Tae Hoon, as the keynote speaker. In addition to Prof Oum, two Nanyang Business School professors, both indigenous Koreans, also spoke – Dr Park Donghyun, on the causes of the 1997 Korean crisis and the recent trends and recovery of Korea, and Dr Kang In Soo, on the recent changes in the industrial structure and government policy that impact FDI in Korea.

The second NTU-CNP seminar “The New Indonesia and Its Business Opportunities for Foreign Investors” was held on 5 May 2000. His Excellency, the Minister Counselor for Economic of the Embassy of the Republic of Indonesia in Singapore, Mr Trijono Marjono, graced the occasion. In his speech, he said that Indonesia welcomed foreign investors, especially those from Singapore. Another speaker, Ms Angeline Suparto, a partner in CNP who heads the Indonesia desk, spoke on critical legal issues facing the foreign investor in Indonesia. The panel once again comprised mostly indigenous Indonesian speakers, this time from a diversity of backgrounds – a lawyer, an academic and the last from industry.

Where IT rekindles literature

Literature was a flamboyant affair in the days of the old Nantah. Today, at a modern and technology-driven NTU, the fragrance of literature remains strong.

Centered on the theme of "IT and Literature", the Chinese Literary Festival held at NTU on 27 May 2000 occasioned a meeting of literature with IT, testifying to the continuation of a strong literary spirit on this campus largely dominated by engineering and business students.

Senior Minister of State for Education, Mr Peter Chen, graced the Festival which drew a crowd of more than 450 secondary and JC teachers and students, NTU students, and some 70 teachers and students from Malaysia. The invited speakers, Prof Lawrence Wong from Hong Kong Ling Nan College, and Dr William Marr, a retired nuclear energy scientist and poet from Chicago, joined by 8 established local writers*, addressed the audience on the relationship between IT and literature.

Prof Wong aptly described IT's role in literature as a pair of extended wings to imagination, while Dr Marr led the audience into his fascinating personal website, cautioning those present on the speed of change in the Internet world that might pose an issue to the survival of literary history.

When the Festival was inaugurated in 1994, NTU staff from the Centre for Chinese Language and Culture and NIE's Division of Chinese Language and Culture, together with other local writers, set on a project to nurture young writers in secondary schools and JCs. Today, some six years later, we taste the fruit: a collection of essays written by these aspiring young writers has been published in a book titled Shao Nian Xing.

The Chinese Literary Festival 2000 was jointly hosted by the Centre for Chinese Language and Culture, the Division of Chinese Language and Culture, the NTU Chinese Society and the National Arts Council. It was sponsored by Singapore Pools (Pte) Ltd and Lianhe Zaobao.

* They are (in random order): Ai-yu (Mdm Liu Kwee Lan); Xi-ni-er (Mr Chia Hwee Pheng); Dong-nongzheng (Mr Tong Noong Chin); Liu-Ruijin (Mr Henry Low Swee Kim); Zhang Qianyu (Mdm Chong Chen Nyok); Liu Pei Fang (Mdm Low Pooi Fong); Youjin (Mdm Tham You Kim) and Cai Shen Jiang (Mr Chua Chin Kang).
NBS’ first inter-divisional colloquium

Faculty from the Nanyang Business School’s (NBS’) Divisions of Strategy, Management and Organisation (SMO) and Information Technology and Operations Management (ITOM) held a full two-day colloquium on 2 and 3 March 2000 in the Function Room of the Staff Club. The colloquium provided an interdisciplinary forum for staff from the two divisions to share their research interests as well as to suggest areas for future interdisciplinary collaboration. Well over 50 staff from diverse research backgrounds participated in the colloquium. Prof S Paul Goodman and Denise M Rousseau, two distinguished Shaw Professors from Carnegie Mellon University, also shared research experience from the West. Exciting and diverse research themes that emerged included strategies for managing cross-national human resources in contemporary organisations, the role and value of IT in new organisational designs, and leadership and knowledge management. The colloquium, the initiative of the two division heads, Assoc Profs Ang Soon (SOM) and Christina Soh (ITOM), will be institutionalised and held on a regular basis.

Placement office for MBA students

The Nanyang Business School (NBS) has set up a placement office – the Career Development Service – to help its Masters of Business Administration (MBA) participants secure jobs before or upon graduation. The Service is timely as an increasing number of MBA participants do not return to their previous jobs and now pursue the Masters course to re-orient or change their careers. To date, two participants have been placed in permanent positions at IBM and PSA, with another 12 placed in internship programmes with HSBC, Andersen Consulting, Apple Computer, Prebon Yamane and Think Masters and Associates. The number of part-time and full-time MBA students at NTU, both local and foreign, has been rising steadily over the years. There are currently 418 part-time and 66 full-time MBA students at NTU. The placement service will be extended to NBS undergraduates in due course.

NTU, through Chinese scholars’ eyes

During an academic stint here under the Tan Chin Tuan Student Exchange Scholarship from February to June 2000, eight students from four top universities in China went beyond science and engineering pursuits to discover a way of life. Qian Yiping, 22, who hails from Xi’an Jiaotong University, was impressed with the infrastructure of the University. She not only confirmed hearsay of Singapore’s beauty, but found it right on campus where “the conditions in the lab are very good.” 22-year-old Lu Xinzheng from Tsinghua University shared these insights: “NTU students seldom go to the classroom. They study very independently. They also operate software very well, are very industrious, and they seldom sleep!” NTU is believed to be the first university outside China to host top Chinese undergraduates, made possible by the generous contributions of the Tan Foundation which is chaired by retired banker and philanthropist, Tan Sri (Dr) Tan Chin Tuan. The idea for the student exchange was first mooted by NTU President, Dr Cham Tao Soon, during a visit to China in 1995. “We seized on the unique opportunity to collaborate as student exchanges with Chinese universities are rare,” he said. NTU has student exchange programmes with more than 35 countries around the world.

New Minor in Chinese

From July 2000, NTU students can read a new Minor in Chinese option offered by the Centre for Chinese Language and Culture. The programme aims to upgrade the Chinese language skills and cultural knowledge of largely science and business stream undergraduates for effective communication in both local and regional situations where the Chinese language is increasingly used.

It offers four areas of study: Language, Literature, History and Culture. Newly introduced subjects include Tang Poetry, Song Verse, Contemporary Literature, Intermediate Translation (Business & Legal), Modern Chinese, Varieties of Chinese, History of Singapore, Special Topics in Modern Chinese History, and The Confucian Heritage and Its Modern Implications, among others. Find out more @ http://www.ntu.edu.sg/cclc/research/Minor.htm

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The University welcomes the following new staff members:

### Nanyang Business School
- Mr Lee Kin Wai - Lecturer
- Mr Chua Chee Hin, Andrew - IT Manager
- Ms Ooi Yu Lin - Project Administrator
- Mdm Ng Mui Cher - Senior Administrative Officer

### School of Applied Science
- Asst Prof Chen Zheng
- Asst Prof Chau Kuo-Fung
- Mr Lim Chai Soon
- Asst Professor
- Assistant Professor
- Project Officer

### School of Civil & Structural Engineering
- Dr Volodymyr Ivanov - Senior Fellow
- Prof Liu Zhengqiang - Professorial Fellow
- Dr Ahmad Sana @ Ahmad Sana Arain - Research Fellow
- Dr Cui Shijie - Research Fellow
- Dr Lee Young Kyo - Research Fellow
- Dr Mazenat Bin Abdul Majid - Research Fellow
- Dr Moy Yan Pu, Benjamin - Research Fellow
- Dr Shao Songdong - Research Fellow
- Dr Shen Weiyue - Research Fellow
- Dr Sun Dongke - Research Fellow
- Dr Toh Wei Siang - Research Fellow
- Dr Yu Guoliang - Research Fellow
- Dr Yu Jiang - Post Doctoral Fellow
- Mdm He Yanxin - Research Associate

### School of Communication Studies
- Miss Loh Szu Fun - Project Officer

### School of Electrical & Electronic Engineering
- Assoc Prof Xu Chang-Qing
- Asst Prof Sun Changqing
- Mr Chau Chan Wah @ Anthony Chan Wah Chau
- Dr Li Quan
- Dr Liaqat Hayat
- Dr Liu Rong
- Dr Liu Xiaoli
- Dr Liu Zheng
- Dr Shen Deyan
- Dr Tang Xiaohong
- Dr Wang Yagang
- Dr Wang Zhichong
- Mr Ng Chin Hon
- Mr Ge Zaokun
- Mr Lim Eng Thiam
- Mr Lu Wensuo
- Mr Wang Wenjiang
- Mdm Bu Jing
- Mdm Chen Yutian
- Mr P Chandra Kumar
- Mr Chia Siew Yong
- Miss Han Xueqin
- Mr Kodagoda Ranadheera Sarath Kodagoda

### School of Mechanical & Production Engineering
- Assoc Prof Sam Zhang Shangrong
- Asst Prof Gong Feng
- Asst Prof Tsai Tsieh
- Dr David Fernando Muñoz Negron
- Dr Wang Qinghui
- Dr Zhang Hong Hai
- Dr Sanjeev Dasaro Muskawad
- Mr Chen Meima
- Mr Ho Gideon

### School of Education
- Prof Cheng Kai Ming
- Mr Tan Yap Kwang
- Asst Prof Karen Philomena Nonis
- Asst Prof Latika Vasil

### School of Physical Education
- Mr Koh Han Chau, Eddie

### School of Science
- Prof Vladimir Alekseevich Gribkov
- Dr Ng Wee Leng

### Estate Office
- Mr Chin Kok Keong

### Centre for IT Services
- Mr Tan Teck Tim

### Alumni and Endowment Office
- Mr Khoo Yong Seng

### Network Technology Research Centre
- Mr Lee Chyan

### Centre for Chinese Language & Culture
- Mr Chong Khin Yong

### Institute of Defence & Strategic Studies
- Dr Long Shi Ruoy, Joey
- Dr Rizal Sukma

### Computer Services Centre, NIE
- Mr Yeo Tuck Huat
- Miss Yamuna d/o Murthy Raju

### Student Affairs Division
- Mdm Teo Chwee Hoon

### Promotions

Congratulations to the following staff on their recent promotion to Full Professor:

- Assoc Prof Edmund Choi Cheong Chuen, School of Civil & Structural Engineering
- Assoc Prof Pan Tso-Chien, School of Civil & Structural Engineering
- Assoc Prof John Joseph Williams, Nanyang Business School

### Appointments

#### New Appointments
- Prof Harsharan Singh – Dean, School of Computer Engineering
- Prof Kong Hock Sun – Dean, School of Materials Engineering
- Prof Robert Gay – Director, Service Providers Competency Centre
- Assoc Prof Michael Kho Khiam Aik – Deputy Director, Advanced Materials Research Centre
- Assoc Prof Eddie Ng Yen Kwee – Deputy Director, Centre for Graphics & Imaging Technology
- Assoc Prof Lalit Kumar Goel – Deputy Director, NTU-MINDEF Protective Technology Research Centre
- Assoc Prof Law Choi Look – Director, Global Positioning Systems Centre
- Assoc Prof Goh Pong Chai – Deputy Director, Global Positioning Systems Centre
- Assoc Prof Yun Chan Hua – Deputy Director, Global Positioning Systems Centre
- Assoc Prof Xie Ming – Deputy Director, Global Positioning Systems Centre
- Assoc Prof Seah Hock Soon – Acting Director, Centre for Graphics & Imaging Technology

#### Re-appointments
- Assoc Prof Cheng Tee Hiang – Director, Network Technology Research Centre
- Assoc Prof Francis Lee Bu Sung – Deputy Director, Network Technology Research Centre
- Assoc Prof Peter Hing – Director, Advanced Materials Research Centre
- Assoc Prof Wong Kok Cheong – Director, Centre for Graphics & Imaging Technology
- Assoc Prof Wang Han – Deputy Director, Centre for Graphics & Imaging Technology
- Prof Pan Tso-Chien – Director, NTU-MINDEF Protective Technology Research Centre
- Assoc Prof Shu Dong Wei – Deputy Director, NTU-MINDEF Protective Technology Research Centre
- Assoc Prof Gerald See Jian Lee – Director, Robotics Research Centre
- Assoc Prof Wang Dan Wei – Deputy Director, Robotics Research Centre
- Assoc Prof Andrae Sluzek – Deputy Director, Robotics Research Centre

### Best Student Paper Award honour

Ms Wong Sze Sze, a Senior Tutor in the Division of Strategy, Management and Organisation, Nanyang Business School, recently received the Best Student Paper Award in the Managerial and Organisational Cognition Division of the 2000 Academy of Management Conference. Ms Wong is currently a doctoral candidate in the Management programme at the Fuqua School of Business, Duke University. Every year, the Academy of Management organises an international conference for corporate managers, academics and students the world over to meet to present papers and exchange ideas on vital management issues. Ms Wong’s award-winning paper, Shaping Collective Cognition and Behaviour Through Collective Learning, was one of 71 papers submitted to the Managerial and Organisational Cognition Division of the Academy. Her paper, co-authored with her advisor, Dr Sim Sitkin, contributes to the existing research on organisational learning by highlighting the significance of social interaction as the mechanism through which organisations learn.
If you’ve visited the Staff Club recently for the first time after its doors were closed for renovations last year, you would have soon noticed a perceptible transformation behind the little-changed whitewashed façade, still visibly defined by its characteristic elegant sweeping roof.

It’s not just the improved dining hall, which now serves up great lunch and dinner deals on a regular basis, that catches your eye. It’s also the other new and improved facilities that relax and revitalise the mind and body – things like the new gymnasium, the enlarged bar & lounge, the new high-tech karaoke rooms, the snooker table, a video games room, and an acoustically excellent 80-seater function room that opens out to a pretty terrace. Yes, this is the potent mix of goodies that has emerged after 16 months of reconstructive work on the clubhouse, now occupying a floor area of 1,351 sq m.

With the new frills comes a bigger role for the Club. Speaking on the Club’s new expanded mission, the Staff Club Chairman, Prof Brian Lee, said: “We would like to encourage Schools and departments to promote and organise talks, seminars, workshops and social gatherings in the Staff Club as the facilities, which include catering services, are presently ideal for such purposes. We also encourage university staff and their families living in and outside the campus to support and participate in the Club’s activities and optimise the use of its facilities.”

Located off Nanyang View, near the staff quarters, the fully air-conditioned Staff Club was first built in November 1985 to serve as a focal point for staff and their families to forge closer ties and as a congenial meeting place for staff and industry leaders. The clubhouse was officially opened on 2 May 1986 – then, with its 900 sq m floor area taken up by a dining hall, a bar & lounge, and two function rooms. In October 1998, refurbishment works on the 13-year-old clubhouse began. Early this year, the clubhouse experienced a millennium rebirth to a warm reception from NTU staff.

The Staff Club is open from Monday to Saturday, from 11am to 10pm. It is closed on Sundays and Public Holidays. Most of the new facilities are available for booking by staff for use at a fee. For more information, contact Mrs Iris Tan at 791 2698.

During the period April to June 2000, the University received the following distinguished visitors:

- 8 Apr Dr Miriam Hederman O’Brien, Chancellor, University of Limerick, Ireland
- 11 Apr Prof Dudley H Williams, Lee Kuan Yew Distinguished Visitor Prof Emil Spjøtvoll, Vice-Chancellor, Norwegian University of Science & Technology
- 25 Apr Pehin Abu Bakar Apong, Permanent Secretary, Ministry of Education, Brunei Darussalam
- 15 May Dr John Hinchcliff, President & Vice-Chancellor, Auckland University of Technology, New Zealand
- 19 May Mr Lami Kawah, Minister of Planning and Economic Affairs, Liberia
- 22 May Dr Roderick Fraser, President, University of Alberta, Canada
- 26 May Dr Abdul Rahman Memon, Vice-Chancellor, Mehran University of Engineering and Technology, Pakistan
- 8 June Mr Pentti Ruotsala, President, Vassa Polytechnic, Finland
- 14 June Mr L Boyce Sebetela, Assistant Minister of Finance and Development Planning, Republic of Botswana

During this period, the University also received visiting delegations from the National Institute of Science and Technology, Indonesia; APEC Education; the Force Systems and Prospective, France; the University of Twente, Netherlands; Xi’an Jiaotong University, PRC; the Khon Kaen University, St John’s University, Chiang Mai University, and the Thammasat University, Thailand.