



# ENTERPRISING EDUCATION EDUCATING ENTERPRISE

National University of Singapore  
Annual Report 2002



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a landscape of  
**CHANGE**  
**CHANGING**  
the landscape



a landscape of

# CHANGE





CHANGING

A close-up photograph of a person's hand, wearing a dark brown leather jacket sleeve, pointing its index finger towards the center of the frame. The background is a vibrant, abstract landscape with horizontal bands of yellow, green, blue, and orange, suggesting a sunset or sunrise over water. The overall composition is artistic and evocative.

the landscape

It's a fast-changing world. With change come opportunity and challenge. In response, NUS aspires to be a global knowledge enterprise. To realise the NUS vision, changes must occur not only in the University's external

aspects but also reach its very DNA –  
the rich diverse landscape of the minds,  
behaviours and personalities of all  
who make up the NUS community.



Professor SHIH Choon Fong **President & Vice-Chancellor**

## President's Message

In an increasingly borderless world, knowledge is not pursued in isolation. Rather, it is advanced by a global community of scholars, researchers, and knowledge professionals, working together in social, professional and organisational networks. Indeed, creating, disseminating and applying knowledge have become a global enterprise.

In this global enterprise, the research university can play a critical role as catalyst for innovation and wealth creation. This is evident in the successful co-evolution of science and technology hubs alongside strong research universities in many parts of the world, including Silicon Valley and Route 128. They have leveraged on the natural synergies between education, research and entrepreneurship.

NUS has a role in Singapore's transformation into a knowledge and innovation driven economy. To fulfil this role, NUS needs to infuse our education and research with a spirit of enterprise. Therefore, our mission has to encompass nurturing innovators and entrepreneurs in addition to educating the young minds and talents of Singapore.

**Promoting a Spirit of Enterprise** NUS is actively pursuing a course of integrating its core competence in education and research with an enterprise role. In addition to our academic and corporate clusters, NUS now has an Enterprise Cluster to promote entrepreneurial activities and initiatives. Among other things, it provides entrepreneurial support services, fosters industry collaboration, and facilitates greater commercialisation of ideas. In addition, the cluster endeavours to instil a spirit of enterprise among all levels of our community.

A key initiative is the setting up of NUS Overseas Colleges in entrepreneurial hubs anchored by premier universities around the world. The overseas colleges aim to nurture the entrepreneurial spirit in our students through immersing them in these challenging and academically stimulating environments. Following the formation of NUS College in Silicon Valley, NUS College in Bio Valley (NCBV) has been set up in collaboration with University of Pennsylvania (Penn) and University City Science Center. NCBV will leverage on the academic strengths of Penn and its central location in the New York-Philadelphia-Washington corridor, where biotechnology and bio-medical start-ups abound.

The Enterprise Cluster also oversees the NUS Business Incubator (NBI). Co-locating start-up incubatee companies on campus can facilitate the lively exchange of ideas and knowledge and strengthen collaborative relationships. These evolving social and professional networks in NUS can also enrich the campus experiences for both students and faculty. Moving forward, an Overseas Business Centre will be established to provide NUS start-ups a soft landing into key overseas markets.

NUS has been leveraging on its proximity to science parks, including one-north's Biopolis and Technopolis, to build synergistic partnerships for knowledge transfer and application. Our students benefit from internship opportunities with our science park partners. In turn, access to NUS' cultural and social facilities enriches the social lives of researchers and knowledge workers at neighbouring science parks. I envisage that this seamless connectivity with the science parks will spawn a vibrant and enterprising community of students, scholars, researchers, knowledge workers, and entrepreneurs.

“NUS has a role in Singapore’s transformation into a knowledge and innovation driven economy. To fulfil this role, NUS needs to infuse our education and research with a spirit of enterprise. Therefore, our mission has to encompass nurturing innovators and entrepreneurs in addition to educating the young minds and talents of Singapore.”

Professor SHIH Choon Fong  
President & Vice-Chancellor

**Building a Connected Knowledge Community** NUS aims to be a vibrant community actively engaged at the forefront of ideas and vitally connected to the global knowledge community. Our aspirations call for an organisational culture where there are no walls to talent, no walls around minds, no walls to ideas, and no walls between discovery, transfer, and application of knowledge. A “no walls” culture is at the heart of a connected community of intellectually resourceful individuals, infused with a spirit of enterprise and global mindset. This “no walls” culture also fosters a learning environment that helps students to appreciate diverse cultures and prepares them for different careers worldwide. Our students will be ready to take on the challenges ahead and to thrive in the global marketplace.

In our “no walls to talent” approach, NUS is recruiting vigorously in the global talent marketplace. Our appointment and promotion criteria are now benchmarked against the prevailing academic and research standards at leading universities overseas. In parallel, NUS has been implementing performance-based, market-driven remuneration.

The “no walls” culture also involves building partnerships at all levels within NUS as well as reaching out to collaborate with university and industry partners in the region and worldwide. These strategic partnerships leverage on the distinctive and complementary strengths of respective partners. Through these partnerships and networks, NUS spreads its influence in the world as well as brings the world to our campus.

One key global partnership is the Association of Pacific Rim Universities (APRU), a consortium of 35 leading research universities from 16 economies along the Pacific Rim. APRU aims to promote scientific, educational

and cultural collaboration among Pacific Rim economies. It is modelled after the Association of American Universities (AAU), a prestigious consortium of more than 60 leading research universities. All US members of APRU are also AAU members. Like AAU, APRU embodies a commitment to global academic and research standards.

In June, NUS was elected to lead APRU. The APRU secretariat is now located at NUS. NUS is initiating the establishment of APRU Enterprise, a springboard to promote entrepreneurial programmes and best practices and to launch innovations.

**Looking Ahead** In today's rapidly changing economy, the window of response and adaptation for organisations has narrowed drastically. To survive and thrive, organisations must re-invent themselves ever so often. NUS is no exception.

We will take advantage of the confluence of purpose between academic and entrepreneurial pursuits. We will build synergistic partnerships with knowledge organisations, regionally and globally, to transform NUS into a connected knowledge community of social and professional networks linked by shared interests.

Our endeavours call for the commitment and support of our faculty, staff, students and alumni. Each of us has a part to play in moving NUS forward. I am confident that together we shall contribute to the realisation of our vision to become a global knowledge enterprise, building synergies between education, research and entrepreneurship.

# National University of Singapore Council

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15	16			

**1 Dr CHEONG CHOONG KONG**  
**Chairman, NUS Council**  
 Deputy Chairman & CEO  
 Singapore Airlines Ltd

**2 Dr KOG YUE CHOONG**  
**Deputy Chairman, NUS Council**  
 President  
 East West Engineering Consultants

**3 Professor SHIH CHOON FONG**  
 President & Vice-Chancellor  
 National University of Singapore

**4 Professor CHONG CHI TAT**  
 Deputy President & Provost  
 National University of Singapore

**5 Mrs SUSAN CHAN YOKE KATE**  
 Principal  
 Tampines Junior College

**6 Mr CHAY WAI CHUEN**  
 Chief Executive Officer  
 Grocery Logistics of Singapore Pte Ltd

**7 Professor GEORGE P LANDOW**  
 University Scholars Programme  
 National University of Singapore

**8 Mr LIEW HENG SAN**  
 Permanent Secretary  
 Ministry of Law

**9 Mr LIM JIT POH**  
 Deputy Managing Director  
 L.C. Development Ltd

**10 Mr JAMES LOH SINN YUK**  
 Principal  
 Mainwell Capital Pte Ltd

**11 Mr CHANDRA MOHAN K NAIR**  
 Partner  
 Tan Rajah & Cheah

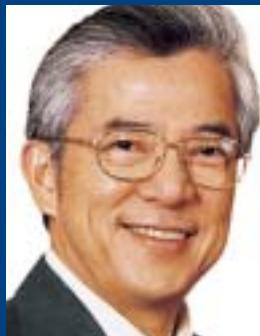
**12 Dr ANTHONY REBUCK**  
 Vice President & Director  
 Clinical Research & Development  
 Asia Pacific Region  
 GlaxoSmithKline

**13 COL JIMMY TAN CHENG YAW**  
 Commander, Air Defence Systems Division  
 Ministry of Defence

**14 Professor WANG GUNGWU**  
 Director, East Asian Institute  
 National University of Singapore

**15 Mr WEE HENG TIN**  
 Director-General of Education  
 Ministry of Education

**16 Mr WONG AH LONG**  
 Chief Executive Officer  
 Suntec City Development Pte Ltd



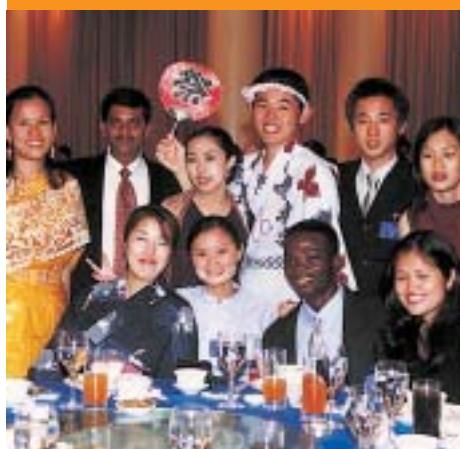
# Year in Action

JULY – SEPTEMBER 2001

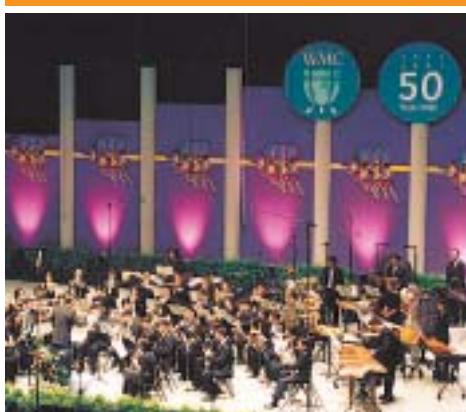
The Institute for Mathematical Sciences was officially opened by Rear-Admiral (NS) Teo Chee Hean, Minister for Education and Second Minister for Defence. Modelled after established centres of mathematical research in Europe and North America, the university-level research institute will conduct multi-disciplinary research in the applications of mathematical sciences.



NUS students teamed up with their counterparts from Harvard University to host the *10th Global Conference on the Harvard Project for Asian and International Relations (HPAIR)*. The event is a realisation of both universities' aspiration to foster understanding and good relations among the international youth community. About 400 university student leaders from all over the world attended the four-day conference.



The Logistics Institute-Asia Pacific (TLI-AP), a partnership between NUS and Georgia Institute of Technology, was opened by Brigadier General (NS) George Yeo, Minister for Trade and Industry. The university-level research institute will nurture logistics excellence in support of Singapore's economic activities by training professional logistics manpower and delivering state-of-the-art research and development in logistics engineering, technology and management. TLI-AP's multi-disciplinary Dual Degree Master of Science programme enrolled its first batch of students.



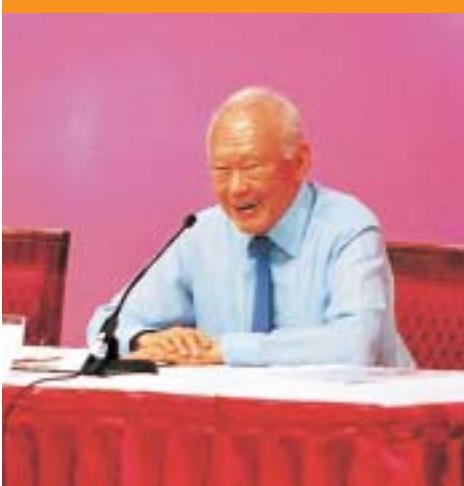
NUS joined fellow member universities of *Universitas 21* in a joint venture with Thomson Learning, a global provider of tailored learning solutions, to address the global demand for higher education. The online university, called *Universitas 21 Global*, will offer certification from the 16 participating universities. The first courses commencing in 2003 will be Master's programmes in business and management information systems.

The IKONOS Data Reception and Processing Facility began operations at NUS Centre for Remote Imaging, Sensing and Processing (CRISP). The facility undertakes direct tasking and data collection of high-resolution imagery from the IKONOS remote sensing satellite. The latter, operated by Space Imaging LLC, USA, is the first commercial satellite with the capability to capture 1-metre resolution images of any place on earth.

Alumni and undergraduates came together to do their alma mater proud at the *14th World Music Contest* held in Kerkrade, the Netherlands. Participating for the first time at this major international festival for wind instruments, NUS Wind Symphony took the gold medal in the Harmony Band Concert Division II.

## OCTOBER – DECEMBER 2001

National University of Singapore Students' Union (NUSSU) hosted the *NUSSU Senior Minister Forum 2001*. In a speech entitled *Remaking Singapore in the New Age*, Senior Minister Lee Kuan Yew was open and candid in sharing with his audience the challenges that lie ahead. The 1,750-strong audience was made up of students and faculty from the nation's three universities.



The NUS Business Incubator (NBI) was launched at the opening of the new premises of the Industry and Technology Relations Office. A new initiative to facilitate the commercialisation of ideas and promote entrepreneurship within the University community, NBI has developed a range of unique, customer-oriented support and services.



NUS-affiliated Institute of Molecular and Cell Biology (IMCB) announced it had, together with its international consortium partners, completed the draft sequence of the genome of the Japanese puffer fish FUGU rubripes. The draft is the first vertebrate genome to reach the same level of completion as the human genome sequencing and will be used to annotate the human genome. The data from the research was made public at the *13th International Genome Sequencing and Analysis Conference* in San Diego, California.



NUS, together with the Singapore National Institute of Chemistry, organised the Singapore International Chemical Conference-2 (SICC-2). This was the first time the biennial chemical conference was held on a global basis. It brought together participants from 27 countries to discuss new ideas and emerging trends in chemical sciences. The event was supported by the University's Chemical and Process Engineering Centre.

The new Centre for Entrepreneurship was established under NUS Enterprise. Integrating education, research and outreach activities, the Centre will promote innovation and enterprise among the NUS community. New initiatives to be introduced by the Centre include organising a new regional *Start-up@Asia* business plan competition and the first *Stanford Global Entrepreneurs Challenge* to be held outside the US.

Converging with Singapore's positioning to become an Asian renaissance city, NUS signed an agreement with the Peabody Institute, Johns Hopkins University, to establish the Singapore Conservatory of Music. The new faculty will offer a four-year honours degree in music, modelled on Peabody's programme. The Conservatory will welcome its first cohort in academic year 2003.

## Year in Action (cont'd)

JANUARY – MARCH 2002

The Singapore-MIT Alliance (SMA) held its second Annual Symposium at the NUS University Cultural Centre. This year the Symposium touched on the broader impact of global education. Research projects undertaken in the various SMA programmes were highlighted. Dr Charles Vest, President of Massachusetts Institute of Technology (MIT), spoke on *A Vision of MIT's Future* to an audience comprised of SMA Faculty Fellows from Singapore and MIT and guests from the government, academia and industry.



The first batch of NUS College in Silicon Valley (NCSV) students left for Silicon Valley. They will work full-time as interns in technology start-ups and take entrepreneurship courses part-time at Stanford University. NCSV is the first of five overseas colleges that NUS is planning to establish in thriving entrepreneurial hubs around the world to give its students hands-on insight into best entrepreneurial practices.

The newly-renovated and extended CJ Koh Law Library was declared open by the Honourable Chief Justice Yong Pung How. Endowed with a bequest from the late Mr Koh Choon Joo (CJ Koh), the new law library collection houses a common law collection with a special emphasis on legal materials from the Commonwealth. It consists of 54,514 unique titles comprising more than 173,000 volumes.



President S R Nathan opened NUS Museums' dedicated premises at the annexe of the University Cultural Centre. The newly-built \$12 million building has 10,000 sq ft floor space divided into three levels. Each is dedicated to one of the Museums' three collections – the Lee Kong Chian Art Museum, South and Southeast Asian Gallery and the Ng Eng Teng Gallery. With its new facility, the Museums will be able to display at any one time 1,000 art pieces.

The Faculty of Law moot team achieved a double first at the *Willem C Vis International Commercial Arbitration Moot*. It crowned its first attempt at the commercial arbitration international moot by walking away with the winner's trophy. More than 100 universities in 35 countries competed in simulated arbitral proceedings on international trade law. The moot was held in Vienna.



H.E. Samdech Hun Sen, Prime Minister of Cambodia, delivered the *ASEAN Lecture*. He spoke on *Challenges and Promises of ASEAN Integration: A Cambodian Perspective*. The *ASEAN Lecture* is organised by the Public Policy Programme, Faculty of Arts & Social Sciences, to raise the awareness of ASEAN issues in Singapore and the region.

APRIL – JUNE 2002

NUS kicked off preparations for its centennial year with the launch of a centennial campaign to raise \$100 million for education and research. The launch was celebrated with an acknowledgement of a bequest of shares from the late Mr Lee Hiok Kwee. Dr Tony Tan, Deputy Prime Minister and Minister for Defence, was one of the many VIPs present.



The *First Bilateral Symposium on Advances in Molecular Biotechnology and Biomedicine* was organised by the Faculty of Science together with the University of Sydney's Virtual Department of Molecular Biotechnology. An extension of the Professional Placement Programme between the two universities, the Symposium attracted 400 participants to exchange recent findings on advances in the two fields of studies.

Mr Li Lanqing, Vice-Premier of the State Council, People's Republic of China, visited NUS during his state visit to Singapore. In his welcome speech, Professor Shih Choon Fong, NUS President and Vice-Chancellor, shared the *Four No's in Reinventing NUS* with the Vice-Premier.



NUS signed a Memorandum of Understanding with the University of Pennsylvania (Penn) to be its partner university in the setting up of NUS College in Bio Valley (NCBV). NUS students studying at NCBV will study at Penn's School of Engineering and Applied Science and the Wharton School of Business while working full-time as interns in biotech and biomedical start-ups in the New York-Philadelphia-Washington corridor. NCBV is the University's second overseas college in the US.

A team of business school students was commended for their entrepreneurial flair in applying classroom knowledge to the real world. Judges at the *L'Oréal Marketing Award* competition in Paris awarded them a Special Mention for their strategy to reach out to the youth market. Their solution, named the Quickie Concept, was based on a new generation of boutique hair salons to be sited where youths hang out. The Concept was based on the team's marketing scheme that won them the top prize at the *Singapore L'Oréal Marketing Award (2002)*.



Professor Shih Choon Fong, NUS President and Vice-Chancellor, was elected by members of the Association of Pacific Rim Universities (APRU) to be their new chairman. APRU, a consortium of 35 leading research universities from 16 economies along the Pacific Rim, promotes scientific, educational and cultural collaboration among their countries. APRU has moved its secretariat to NUS.

## Annual Review

Academic Year 2001 – 2002

extending the enterprise of

**KNOWLEDGE**

extending

**KNOWLEDGE**

to enterprise

A photograph of several people working at a large wooden conference table. In the foreground, a man wearing glasses and a dark shirt is focused on writing in a notebook. To his right, a woman in a black top is also working. The table is covered with stacks of papers, pens, and a water bottle. The background shows a bright office environment with fluorescent lighting.

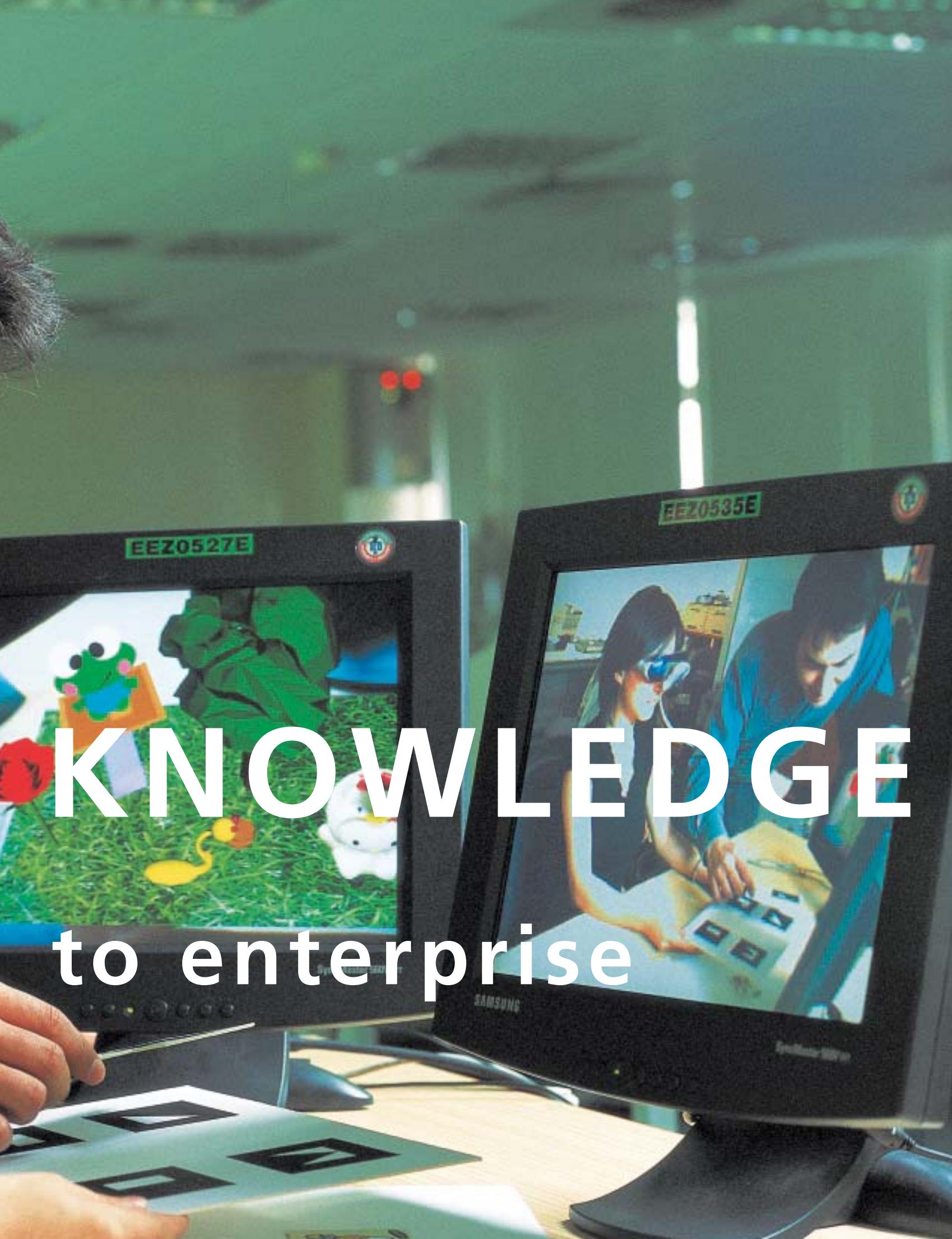
extending  
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A photograph of a classroom setting. In the center, a man wearing glasses and a yellow shirt is pointing his right arm towards a whiteboard. On the whiteboard, there are various handwritten chemical structures and formulas, including "B2H6", "H2O", "H S. orbit", "O + L", and "B2". In the foreground, several students are visible from behind, looking towards the whiteboard. One student on the left is writing in a notebook. The word "KNOWLEDGE" is overlaid in large, bold, white capital letters across the bottom of the image.

KNOWLEDGE

A photograph of two young women looking down at a computer monitor. The woman on the left is wearing a dark hoodie and has her hair pulled back. The woman on the right is wearing a light blue sweatshirt and has short dark hair. They are both smiling and looking at something on the screen. The background is a bright green.

extending



**KNOWLEDGE**  
to enterprise

Recognising the confluence of purpose between academic and entrepreneurial pursuits, NUS is actively integrating its core competence in education and research with an enterprise role. NUS remains vital and relevant by delivering enterprising education and in educating enterprise. In doing so, NUS can be a catalyst for innovation and wealth creation.

## Extending the Enterprise of Knowledge In Education

A NUS education prepares graduates for a life of careers in the global marketplace. The University is a nurturing waterway, preparing students to become robust global players by equipping them with an ocean mindset.

NUS education embraces both learning and discovery integrating them with the processes of knowledge creation, transfer and application.

The quality of the University's education was endorsed by several prestigious publications in the year. The *Financial Times* in its 2001 and 2002 rankings rated NUS Business School as one of the top 100 business schools in the world that offer full-time master's programmes. *Asia Inc.* ranked the Business School third among graduate business schools in the Asia-Pacific.

The quality of NUS law graduates did not go unrecognised. They achieved a first as the only law graduates from Asia allowed to transfer their credits to a *Juris Doctor* programme at the prestigious George Washington University Law School.

International endorsement of the University's engineering education was received from the Institution of Chemical Engineers, UK. It gave both the Chemical and Environmental Engineering undergraduate programmes master's level accreditation.

### Curriculum Development

NUS faculties stepped up the extensive review of their curricula to bring them more in line with the remaking of the University as a global knowledge enterprise and of Singapore as a knowledge-based economy. What emerged is a revitalised curriculum that is broad-based and outward-looking, with emphasis on real-world knowledge application and the development of self-directed life-long learners.

Each faculty resonated with its own momentum of change to bring about a vital and relevant education that gives its students the competitive edge in a rapidly-changing global economy. The Faculty of Arts and Social Sciences completely restructured itself as part of the revamp to provide students with greater flexibility and choice to design their own study courses. The Faculty of Medicine set up a Medical Education Unit to take on the role of quality management. The Unit grew out of changes implemented by the faculty to make learning more integrated, interactive, faculty-directed and student-centred.

The University Scholars Programme opened the academic year heralding a new chapter in NUS education. Shedding the one-size-fits-all approach towards teaching, it redefines NUS education as one that optimises student talent and develops their potential to the fullest. The 4-year honours residential programme is designed to develop the personal, intellectual and leadership qualities of highly-motivated undergraduates.

Another new initiative that came on stream in the year was the General Education Requirement. It requires students to take up modules other than those offered by their discipline, giving impetus to the broadening of education at NUS. Designed to broaden students' intellectual horizons and develop their critical thinking skills and articulacy, it took effect in six faculties.

Taking a lead in the formalisation of life sciences education at the undergraduate level, NUS retrofitted nine laboratories at the Faculty of Science with state-of-the-art equipment in preparation for a new life sciences major that will be introduced in the next academic year. The introduction of the inter-disciplinary course synchronises with Singapore's drive to become a biomedical and bioengineering hub.

Dynamic and outward-looking, NUS education is keenly in touch with the needs of the industry for specialised manpower. A multi-disciplinary programme was launched to train chemical engineers knowledgeable in pharmaceutical engineering at both the undergraduate and



NUS education helps students to realise their full potential in a boundaryless and innovation-driven global economy.

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graduate levels. The course will be taught leveraging on the strengths of the Department of Chemical and Environmental Engineering, Office of Life Sciences and the Bioprocessing Technology Centre.

#### **Graduate Education**

NUS continued to chalk up its reputation as a regional centre of quality graduate education. Graduate enrolment rose by six per cent from the last academic year to a total of 7,695. Nearly half of the graduate population worked for their higher degrees by research.

As in undergraduate education, multi-disciplinary programmes are a strong suit in NUS' graduate education. Taught in an integrated manner, incorporating different disciplinary approaches and modes of enquiry, these courses are NUS' answer to having no walls to ideas. The newly-introduced Master of Science in environmental management is taught with input from seven faculties.

NUS Business School introduced an exceptional master's programme in the course of the year. The International Master of Business Administration is taught in both Chinese and English to leverage on the School's unique strength – its ability to synthesise Asian management insight with proven Western business systems.

Life sciences education was advanced by the Faculty of Medicine. It introduced in the year a master's programme in bioinformatics and the region's first bioengineering graduate programme.

The NUS global classroom was at its most active in graduate education. Faculties stepped up their alliances with the best teaching resources in the world to offer compelling and optimal graduate programmes. Such partnerships bring a wealth of learning opportunities to our students and enhance the market value of their NUS degrees worldwide. Teaching partnerships initiated or launched in the year included:

- a joint doctoral programme (indoor environment and energy) taught by the School of Design and Environment and Technical University of Denmark;
- a joint master's programme (construction law and arbitration) between the School of Design and Environment and the Centre of Construction Law and Management, King's College London;
- a joint master's programme (industrial chemistry) between the Faculty of Science and Technische Universität München;
- a joint master's programme (industrial and financial mathematics) between the Faculty of Science and Technische Universität München;
- a joint master's programme (defence technology and systems) between the Faculty of Engineering and the US Naval Postgraduate School;
- a joint master's programme (chemical engineering) between the Faculty of Engineering and the University of Illinois at Urbana-Champaign;
- a joint doctoral programme (chemical engineering in biomedical sciences) between the Faculty of Engineering and University of Illinois at Urbana-Champaign; and
- a joint master's programme (embedded systems and rapid product development) between the Faculty of Engineering and Technische Universität Eindhoven.

## Extending the Enterprise of Knowledge In Research

NUS' "no walls" culture makes for a vibrant research culture on campus. Win-win synergies and strategic alliances provide impetus to high-impact research by the NUS community and stakeholders.

In the NUS global knowledge enterprise, research is boundaryless with no walls to the spawning of new ideas that comes when talent and minds converge to engage and exchange. Research injects fresh insights into learning and brings intellectual adventure and discovery to the learning experience. Similarly, education and research is imbued with enterprise to give them vitality and relevance.

The year stood out for the impressive number of awards conferred on members of the research community for their achievements. Nearly 100 were received from local and international bodies.

A fair share of the honours was received by younger members of the community. These included the *Biomedical Research Council Young Investigator Award*, the *Temasek Young Investigator Award*, the *DuPont Asian Young Faculty Award 2001*, the *Singapore Youth Awards* and the *Young Inventors Awards*. In recognition of their promise, the University established a special category of awards, the *Young Researcher Award*, at its *University Awards 2002*.

Three more *Temasek Professorships* were appointed in the year to drive niche areas of research strategic to the development of Singapore's economy. Professor Ellis Johnson (Georgia Institute of Technology) will spearhead leading-edge research in air cargo logistics and supply chain optimisation, Professor Rao Tummala (Georgia Institute of Technology) in nano wafer packaging and Professor Artur Ekert (Oxford University) in quantum information science.

### Research Activities

The faculties continued to position themselves at the forefront of research by building up their research strengths. The main thrust of the University's research initiative continued to be multi-disciplinary.

More than 2,000 research papers were published in international journals and a similar number were presented at international conferences. The Department of Real Estate was rated as a leader in international authorship of real estate research in survey findings presented at the *First World Congress of the International Real Estate Society*.

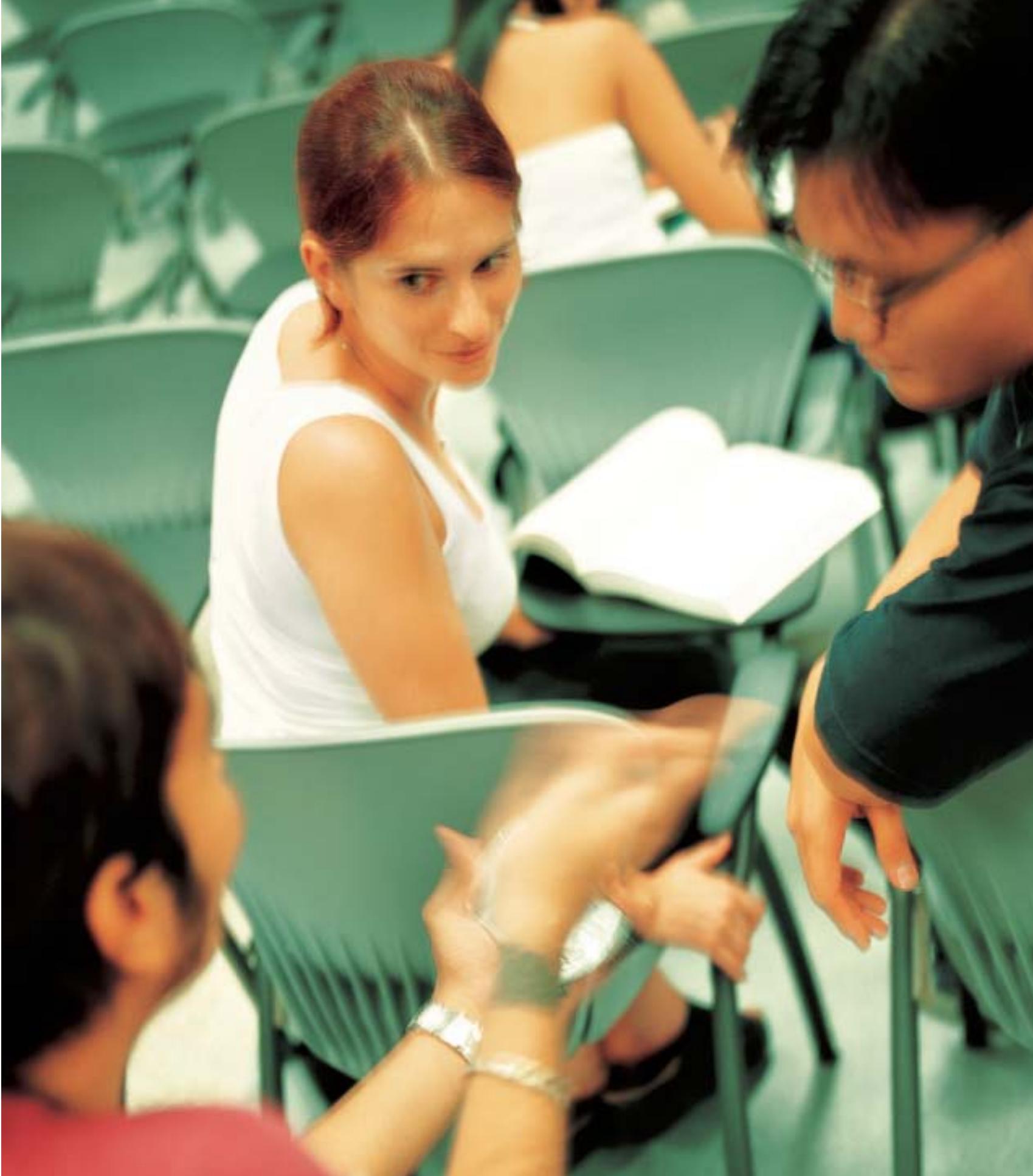
Research funding at \$309 million was double that of the previous year. Main sources of funding received were grants from the government, the Agency for Science, Technology and Research (A\*STAR), the Academic Research Fund, National Medical Research Council, foundations and industry.

NUS kept up its momentum of forging strategic ties with public and private sector partners to bring about the critical mass of talent to spearhead its research drive. A total of 1,125 collaborative agreements were signed.

The close teaching-research nexus between NUS and its 12 affiliated national research institutes remained strong. Ties were further strengthened with the key role played by the Department of Ophthalmology in the establishment of Singapore Eye Research Institute (SERI).

### New Research Facilities

New research directions were realised in the year through the setting up of new centres dedicated to their niche excellence. In line with the University's strategy of building win-win synergies, many of these facilities are anchored on the strengths of more than one stakeholder. Among the many which appeared on campus during the year are the Bioengineering Corridor, the Nanoscience and Nanotechnology Initiative, the Asia Research Institute, the NUS-Genome Institute of Singapore Centre for Molecular Epidemiology, the Centre for



At NUS, new ideas are spawned wherever minds converge to engage and exchange.

Industrial Mathematics, the Synchrotron Radiation Facility for Economically Relevant and Applied Research, and the Centre for Competence in Optimisation.

### Research Achievements

The year's research output was high both in quality and volume, raising the profile of the University as an active node of cutting-edge research. The following are some of the year's breakthroughs:

- A world-first was achieved by the Faculty of Medicine in developing a process that successfully cultivates embryonic stem cells using only human cells and nutrients.
- A breakthrough in the treatment of Duchenne muscular dystrophy was made by the Department of Paediatrics using molecular approaches based on DNA technologies. The research was jointly conducted with the International Centre for Medical Research, Kobe University.
- An energy efficient air-conditioning system and an associated independent distribution system of fresh and return air streams with zonal ventilation control was invented by the Department of Building.
- The first real-time virtual viewpoint generation for mixed reality was developed by the Department of Electrical and Computer Engineering.
- The first two-dimensional carbon nanostructures were successfully grown by the Department of Electrical and Computer Engineering.
- A first-of-its-kind multi-purpose miniature machine tool, encompassing various micro/nano machining techniques, was created by the Department of Mechanical Engineering.
- Discoveries by the Department of Physics on the effects of microgravity on biominerallisation and osteoporosis made the front cover of *Nature Science Update* (13 November 2001 issue). The research is the first on microgravity-induced osteoporosis from the point of view of physics.
- Research findings on controlling wake turbulence by the Department of Computational Science was highlighted in the *Physical Review Focus* (28 January 2002 issue).
- Development of the *lab on a bead* by researchers at affiliated Institute of Materials Research and Engineering. This is a mini diagnostic kit for identifying cancer-causing genes or proteins using a technology that incorporates the complexity of light-emitting substances with the precision of nanotechnology.

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The Osteoarchaeology Research Group, working in collaboration with Ecole Française d'Extreme-Orient on skull findings from the Angkor site, is one of the year's new research activities.



In building synergies between education, research and entrepreneurship, intellectual capital is realised when knowledge emerges from the classroom and laboratory to enter the boardroom and marketplace.

## Extending Knowledge to Enterprise

NUS is committed to infusing a spirit of enterprise throughout its community. Entrepreneurship and industry collaboration are promoted, strengthening links between learning and discovery with knowledge transfer and application.

The year saw the University building up the momentum triggered off by its identification of entrepreneurship as the third pillar of the global knowledge enterprise. An entrepreneurial dimension was injected into NUS' teaching and research competencies, to give them vitality and relevance.

The setting up of NUS Enterprise was integral to this paradigm shift. Grouped under its umbrage is a host of enabling facilities that runs the gamut of nurturing entrepreneurs-in-the-making. From managing intellectual property to incorporating commercial spin-offs, facilities like the Industry and Technology Relations Office (INTRO), NUS Business Incubator, the Centre for Entrepreneurship and NUS Technology Holdings Pte Ltd kept the entrepreneurial pulse strong and sustained in the review year.

The pace was kept up by a stream of programmes designed to provide insights and develop enterprising mindsets. The year was filled with a calendar of techno-venture forums, networking sessions between academia and industry players and intellectual property workshops.

The entrepreneurial spirit was also fanned by the convening of several international events that served as platforms for the exchange of best entrepreneurial practices to inspire exciting new ideas. NUS hosted in the year the inaugural *German Asian Youth Entrepreneurial Leaders*

*Forum* and the first *Stanford Global Entrepreneurs Challenge* held outside the United States.

NUS gave impetus to strengthening industry collaboration by building up its portfolio as a preferred partner. A total of 33 new collaborations was cemented in the year with partners such as Merck, Sharpe and Dohme, British Gas Asia Pacific Pte Ltd and Toshiba Corporation.

An MOU was signed with *Incubators@Work!*, the intrapreneurship arm of Singapore Technologies (ST), that will see NUS students experiencing start-up life at its portfolio companies and the appointment of its senior management as technopreneurship fellows and mentoring advisors to the University's start-ups.

In creating value from ideas, the School of Computing displayed a strong entrepreneurial bent. Researchers at the School backed their technological innovations with sound business plans which won them the top prizes at techno-venture business plan competitions. The winning plan submitted for the third *Start-up@Singapore* was for a grid-computing technology that has the capacity to build up a super-powerful computing environment. A business plan for a formula software that optimises complex schedules at sports events was given the thumbs up by judges at *Start-up@Asia*.

### Enterprise in Education

In building synergies between education, research and entrepreneurship, NUS has made the cultivation of entrepreneurial intelligence an integral focus of the University's educational initiative.

The grooming of entrepreneurs is being realised through the setting up of a network of colleges in the world's thriving entrepreneurial hubs. Called NUS Overseas Colleges, the combined fast-track bachelor's and master's programmes enable selected students to live the start-up culture, working full-time as interns in start-up companies and attending part-time entrepreneurial classes at a partner university.

NUS College in Silicon Valley (with Stanford University as partner university) was sited to tap into the technological fervour of the San Francisco area. NUS College in Bio Valley (with University of Pennsylvania as a partner university) was located to capitalise on the biotech and biomedical business concentration in the New York – Philadelphia – Washington Corridor.

In another initiative in educating enterprise, the Centre for Entrepreneurship is working with Stanford University's Technology Venture Programme in a research and case development project called *Start-up Strategies in the Global Wireless Industry*. The findings will provide a rich resource of case studies for teaching entrepreneurship courses at both universities.

The provision of research incubators as launch pads for entrepreneurs-in-the-making gained new ground in the year. At the faculty-level, the Faculty of Medicine made plans to set up an incubator to encourage its constituents to translate knowledge into intellectual capital. When in place, it will be the third faculty after the School of Computing and the Faculty of Engineering to provide such a value-added facility.

At the university level, the NUS Business Incubator was launched by INTRO to offer NUS stakeholders flexible and affordable work sites to house their start-ups. The infrastructure of shared resources is enhanced by a string of consultancy services, ranging from financial to legal, that are crucial to the successful take-off of any start-up.

### **Enterprise in Research**

The spirit of enterprise caught on in the University's research thrust during the year. The following are some of the intellectual capital that made the transition from research laboratory to the market place:

**Purple Ace Pte Ltd** was incorporated to commercialise innovations in the area of convergence of the Internet, Wireless and Wireline technologies. Its flagship products are *MobileBag* and *Peer-to-Peer Marketing Platform*.

**Robust Dynamics Pte Ltd** was spun off from technology created by the Department of Mechanical Engineering to crash test the resiliency of mobile electronic devices. Mobile phone manufacturers such as

Nokia, Motorola and Sony-Ericsson have shown an interest in the company's services.

**Real Space Pte Ltd** took off to commercialise the vast potential arising from breakthroughs made by the Department of Electrical and Computer Engineering in the medium of mixed reality.

**Bionutra International Pte Ltd** was set up to commercialise discoveries from research in molecular genetics.

INTRO signed in the year a confidentiality agreement with the US-based Panorama Research Inc to develop des-aspartate-angiotensin I (DAA-I) as a pharmaceutical. NUS has filed a patent for the application of DAA-I for five cardiovascular and renal diseases.

Researchers at the Department of Mechanical Engineering created value out of a new lightweight material they originally designed for armoured vehicles by turning it into braid-like posts possessing the qualities of hardness and flexibility that are ideal for restoring root-filled teeth.

the university that goes to the

**WORLD**

the **WORLD**

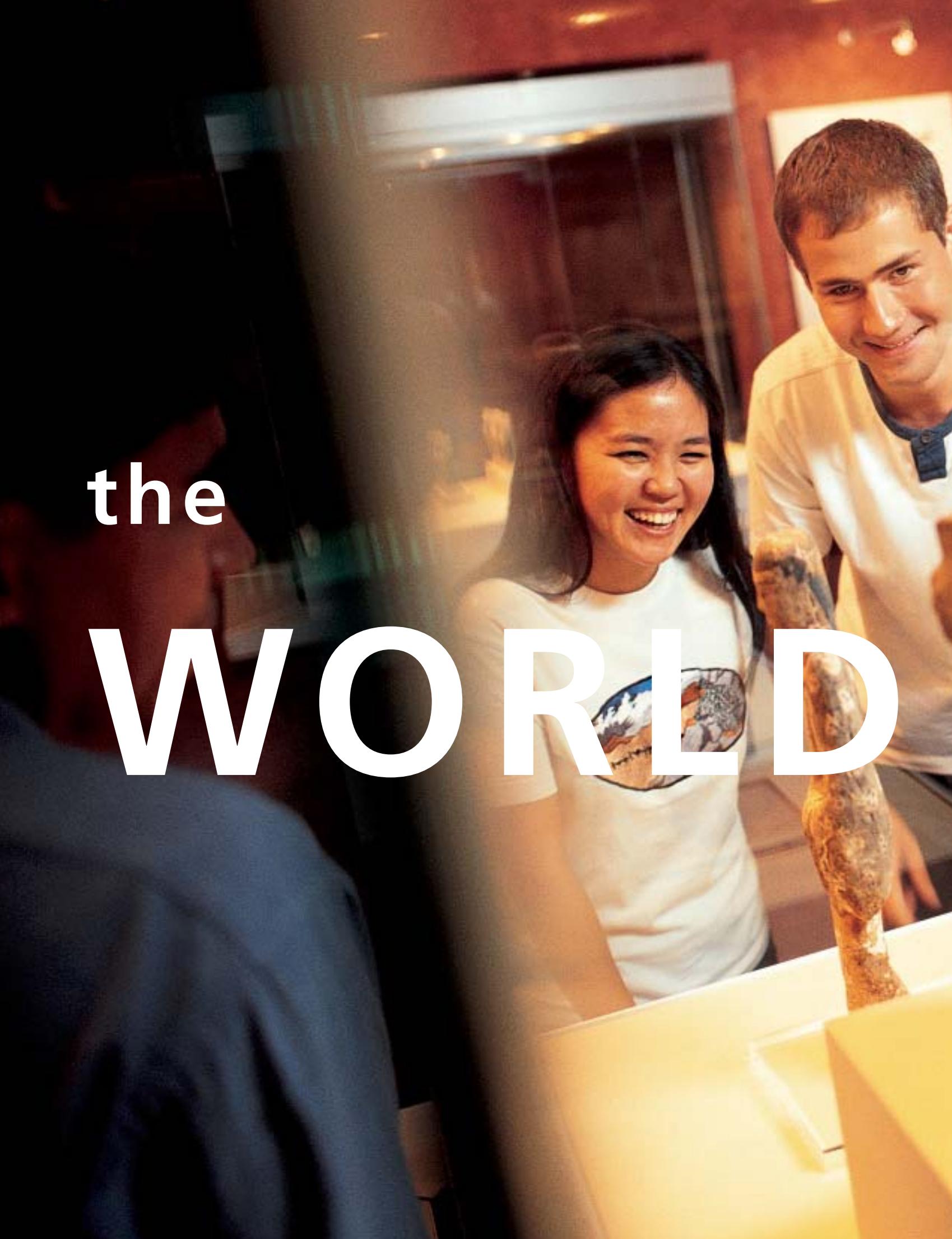
that comes to the university



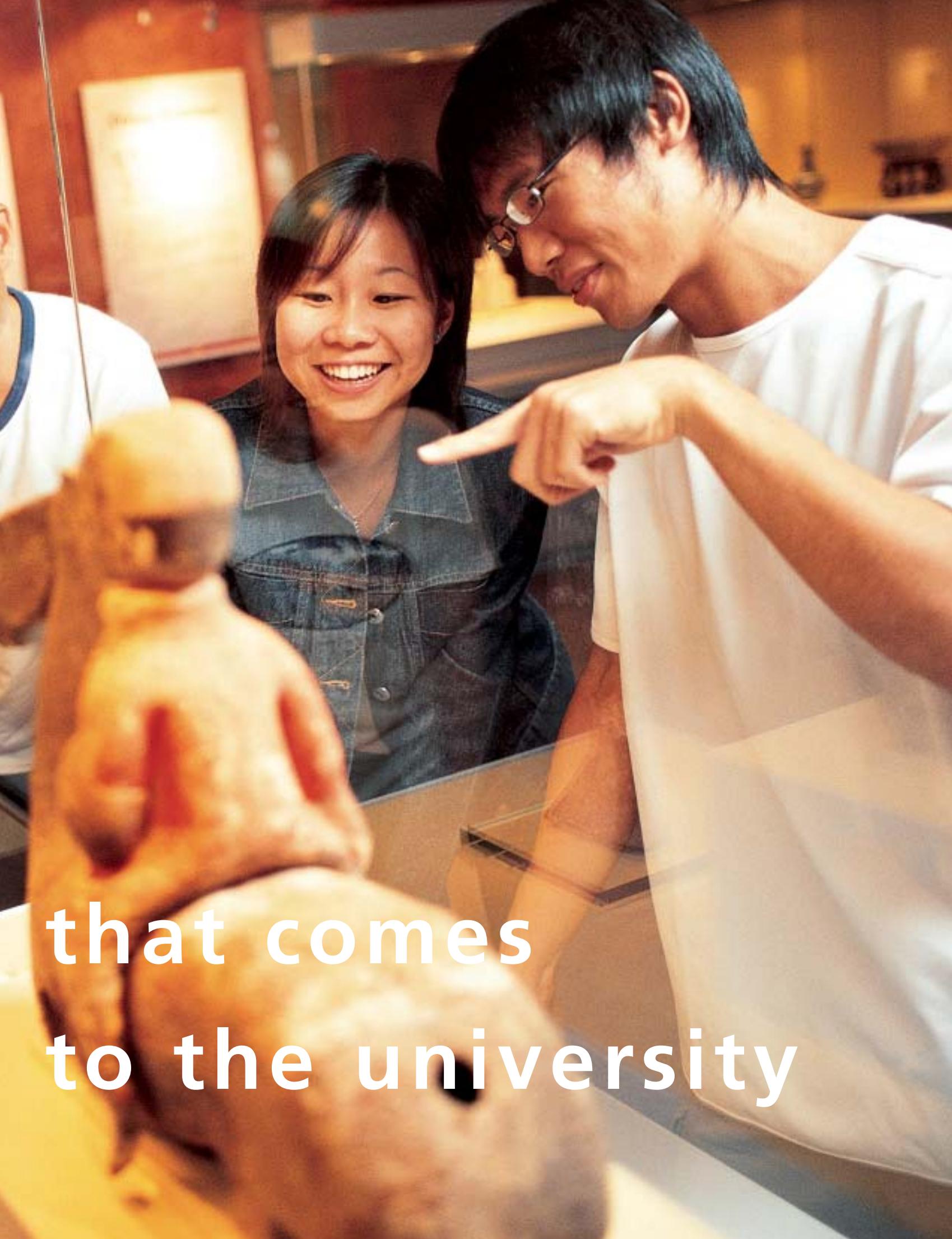
the university  
that

A vibrant night city skyline with illuminated skyscrapers and a bridge over water, with a highway in the foreground showing light trails.

goes to the  
**WORLD**

A vibrant, warm-toned photograph of a diverse group of young adults. In the foreground, a woman with dark hair and a white t-shirt with a graphic print is laughing heartily. Behind her, a man with short brown hair and a light-colored shirt is smiling. To the left, another person's arm and shoulder are visible, wearing a dark jacket. The background is slightly blurred, showing more people and what might be a stage or performance area.

the  
**WORLD**

A group of diverse students in a classroom setting, smiling and interacting.

that comes  
to the university

NUS is vitally connected to the global knowledge community. As a nurturing waterway preparing its graduates to thrive in the ocean of opportunity, NUS seeks to foster a global mindset. Building global partnerships and networking internationally, NUS makes the world its hinterland.

## The University that goes to the World

Knowledge in NUS is not pursued in isolation. NUS is plugged into the global community of scholars and knowledge workers working at the forefront of ideas. Global partnerships have been strengthened and new ones forged.

NUS has made further inroads into the global arena. Global standards and norms became the University's watch word. International engagement took on an intensity altering the physical, cultural and intellectual landscape of the campus to a microcosm of an increasingly globalised world.

The University has established synergistic partnerships with universities worldwide and taken on strategic roles in global consortia that will bring a wealth of educational, research and entrepreneurial opportunities for the University's stakeholders.

A key role was played by NUS in the formation of *Universitas 21 Global*, a global e-university that NUS is participating in partnership with 15 other member universities of *Universitas 21* and Thomson Learning. In June 2002, NUS assumed leadership of the Association of Pacific Rim Universities (APRU), a consortium of 35 leading research universities promoting scientific, educational and cultural collaboration between members and the economies in the region.

### Internationalisation in Education

The NUS global classroom extended its reach far and wide. In crossing over boundaries to learn from the best, NUS education provides immersion programmes in which students experience first hand the culture of best practices that marks out a particular campus or locality.

Student exchange, the flagship of the University's cross-campus immersion programmes, continued to see a rise in the number of participating students and new programmes. Students who went abroad under the programme increased by 35 per cent over the last academic year. New exchange programmes that came onboard in the year included the *DUO Singapore Exchange Fellowship* awarded by the Ministry of Foreign Affairs to promote student exchange with members of the *Asia-Europe Meeting* (ASEM). Awarded for the first time too were the Baden-Wurtemberg scholarships for student exchange at the universities of Freiburg, Heidelberg and Karlsruhe.

The University's double degree programme with the French grande ecoles took a big step forward in the review period. A unique programme that leads to the award of a master's degree by NUS and the Diplome d'Ingenieur by a French grande ecole, it increased its portfolio of partner universities by four to six. New partnerships were formed in the year with Supelec, Mines de Paris, Ponts et Chaussees and Groupe des Ecoles des Telecommunications. The programme also expanded its scope beyond the Faculty of Engineering to include participation by students from the Faculty of Science.

Internships were taken up by students at Siemens in Munich, BASF in Ludwigshafen, Germany; and Air Liquide International and the Eurocopter Group in France. Students studying at NUS College in Silicon Valley interned in 10 US-based start-ups.

### International Collaborations

International partnerships forged in the year were with established names in their fields of expertise. One that caught the attention of the international research community was the joint research on orthonormal wavelets and frames undertaken by NUS Centre for Wavelets, Approximation and Information Processing with Princeton University, University of Alberta and University of Wisconsin-Madison.

The Department of Ophthalmology was multi-linked to Johns Hopkins University, the National Eye Institute, the University of Wisconsin-Madison, and the University of Sydney in a high-profile research that uses retinal photographs to evaluate the potential risks of cardiovascular diseases. Findings from this research have been published in *Lancet* and the *Journal of the American Medical Association*.

In the life sciences, the Department of Biological Sciences worked together with Washington University to sequence full length zebrafish cDNA clones to facilitate the annotation of zebrafish genes for the zebrafish genome project.

The University continued to be active in consortia-based collaboration. The Tropical Marine Science Institute contributed to a US-led joint international experiment in the South China Seas (ASIAEX) involving seven Pacific Rim countries. One of the equipment deployed in the experiment was a moored portable ambient noise data acquisition (PANDA) system designed by its Acoustic Research Laboratory.

#### **International Profile**

NUS faculty and students, through their efforts to excel, were the University's best ambassadors in the international arena. Faculty members continued to be identified by their international peers for the quality of their work. Many of them were invited to serve as external examiners, academic consultants, members of International Advisory Panels and on editorial boards of internationally refereed journals.

Associate Professor Yu Shi Ming (Department of Real Estate) was elected President-elect of the Pacific Rim Real Estate Society. Professor Barry Halliwell (Faculty of Medicine) was ranked as the 28th top biochemist in the world by the *Science Citation Index* on the basis of the impact of his research.

NUS students held their own against their counterparts in international competitions. For the engineering students, in particular, it was a bumper year of winnings. The chemical engineering students were champions at the 2001 *Australasian Regional Chem-E-Car Competition* which

**In June 2002, NUS assumed leadership of the Association of Pacific Rim Universities (APRU), a consortium of 35 leading research universities promoting scientific, educational and cultural collaboration between members and the economies in the region.**

was held in conjunction with the 6th *World Congress of Chemical Engineering*, held in Melbourne, Australia. Not to be outdone were the mechanical engineering students who took the top and third prizes at the *American Society of Mechanical Engineers Regional XIII* design competition. The *Robolian* team from the Department of Electrical and Computer Engineering won the second prize at the *Federation of International Robot-soccer Association Robot World Cup 2001* in Seattle, US.

In line with their increasingly cosmopolitan and cross-cultural outlook, NUS students participated actively in international leadership programmes. A team of 10 made up exclusively of NUS students represented Singapore at the 2002 *International Student Competition Symposium* organised by the University of St Gallen, Switzerland.



NUS researchers live the “no walls” culture, interacting and networking with visiting scientists from all over the world both in and outside the laboratory.

## The World that comes to the University

**Boundaryless and vitally connected, NUS draws to the campus a rich diversity of talent, ideas and perspectives that add up to a stimulating and enriching environment.**

Saying "no" to walls around minds, to talents and to ideas has given impetus to NUS' growth as a confluence of talent where minds meet to exchange, engage and network. The University's standing as a scholarship hub, its research-intensive culture and state-of-the-art facilities continued to be strong pull factors drawing talent from all over the world to Kent Ridge.

### International Hub

Overseas applications to study at NUS in the academic year rose by 23 per cent from the last academic year. International students made up 24 per cent of the student population. International graduate students were a mini United Nations made up of more than 50 nationalities.

International students hosted by NUS on student exchange increased by 26 per cent to 453. A new development in cross-campus hosting was NUS' new role as a choice venue for summer programmes to provide international students from the northern hemisphere with an ASEAN or Asian context. This was kicked off by students from the Georgia Institute of Technology whose 6-week immersion programme involved attending classes taught by faculty from both universities. Norwegian students from seven institutions followed suit by attending a summer course at the NUS Centre for Entrepreneurship under the auspices of the *Norwegian School of Entrepreneurship Summer Programme*.

NUS also took manpower training a level higher with an *Education-Train-The-Trainers Programme (ETTP)*. Nine departments in the University took part in the programme aimed at upgrading the pedagogic and curriculum development skills of emerging education leaders from Myanmar, Cambodia, Laos and Vietnam.

Enlarging the University's outreach was the new *Eastern Europe Research Scientists and Students (EERSS) Exchange and Collaboration Programme*. Conceived to promote NUS as a preferred partner for research collaboration in science and engineering, the programme was launched with the appointment of visiting scientists from Russia and East Europe. Their visits at NUS were hosted by the Faculties of Engineering and Science, School of Computing and university-level research institutes Temasek Laboratories, Singapore Synchrotron Light Source and Tropical Marine Science Institute.

### A Scholarship Hub

Throughout the academic year, NUS throbbed with the buzz and fervour of a beacon of knowledge. The University hosted several high-profile events that served as a platform for intellectual discourse at the cutting-edge. The events included the *Singapore International Symposium in Topology and Geometry*, the *Karolinska Institute (KI)-NUS Life Sciences Symposium* and the *Internet Political Economy Forum*. Nobel Laureate Professor Lou Ignarro was one of the keynote speakers at the *1st Asia Pacific Conference and Exhibition on Anti-ageing Medicine 2002*.

The co-hosting of the *Harvard Project for Asian and International Relations (HPAIR)* by NUS students and those of Harvard University spoke volumes for the University's rising profile in international student leadership. The event is the largest student-managed conference held annually in leading universities in the Asia-Pacific.

Several collaborations with NUS as a partner located their bases to Singapore in the year. Their proximity to the University will bring an international dimension to the existing win-win relationship NUS enjoys with its affiliated institutions. The headquarters of online university *Universitas 21 Global* and the German Institute of Science and Technology, a tie-up between NUS and Technische Universität München, are two that have taken up a Singapore address.

living the **INSPIRATION**

**INSPIRED** by people

A photograph of two young people in a kitchen. A woman on the left, wearing a blue polo shirt, is smiling and looking towards the right. A man on the right, wearing a dark t-shirt with "NUS" and "National University" printed on it, is also smiling. They are standing behind a counter covered with various food items, including a large bottle of oil, a can of Coca-Cola, and several cans of food. The background shows wooden cabinets.

living the

A photograph of a woman in a red turtleneck sweater serving food from a pot to a group of people at a table. The word "INSPIRATION" is overlaid in large white letters across the center of the image.

INSPIRATION

A vibrant, candid photograph of five young women of diverse ethnicities and styles lying on a lush green lawn. They are all smiling and laughing joyfully. The woman on the far left wears a white t-shirt with blue confetti-like spots. Next to her is a woman in a floral top. In the center, a woman with short brown hair and red lips looks directly at the camera. To her right, another woman with dark hair is laughing with her eyes closed. On the far right, a woman in a purple t-shirt is also laughing. The scene conveys a sense of friendship, fun, and inspiration.

**INSPIRED**



by people

NUS provides resources, facilities and services to nurture the spirit of inquiry and foster the spirit of enterprise. The rich learning and living environment enables students, alumni, faculty and staff to grow together in their adventure of learning and discovery, becoming resourceful and alive to opportunities to realise their full potential.

## Living the Inspiration Resources and Services

As enablers and coordinators, the University's resources and services provide the framework against which NUS leverages on strengths within and outside the campus.

NUS' resources and services effectively supported and facilitated the smooth functioning of the University's core competencies.

### Centre for the Arts (CFA)

CFA continued to enrich campus life with an arts and cultural dimension.

A total of 174 events and performances were organised including *Shakuntala of the Mahabharata*, the first Sanskrit theatrical piece to be staged in the English language in Singapore. Another main event in the Centre's calendar was hosting of the *Third ASEAN Universities Arts Festival*.

CFA enrolled as a member of the Montreal-based Commerce International Des Arts de la Scene (CINARS) to foster networking with international performing arts organisations and artistes.

Facilities at the University Cultural Centre enjoyed high utilisation rates of nearly 90 per cent.

### Centre for Development of Teaching and Learning (CDTL)

CDTL launched the Continuing Professional Development Programme to update faculty staff on the latest trends, techniques and practices in teaching and learning. Under its Multimedia Courseware Development Initiative, professional guidance and advice were made available to faculty to help them develop learning content on CD-ROMs that are more interesting, interactive and engaging.

A highlight for CDTL was the successful organisation of the *Problem-Based Learning Symposium: Issues and Challenges*. The

event was well-attended with the participation of local and international educationists.

### Centre for Instructional Technology (CIT)

The year was particularly satisfying for CIT as it received international endorsement for its work and expertise. Its multimedia team won an Award of Excellence at the US-based *Videographer Awards 2002* for a video production entitled *NUS: Settling In*. This achievement was followed by the receipt of the *Information Technology Standards Committee (ITSC) Plugfest 2002 Award* for its in-house developed e-learning technology, the Integrated Virtual Learning Environment (IVLE).

### Computer Centre

The Computer Centre continued to give impetus to enhancing mobile computing on campus. It installed in the year 350 new Local Area Network (LAN) wireless network access points to enable a larger segment of the campus community to connect to the University's network and the Internet. At the same time, it also launched the NUS Virtual Private Network making it easier for staff and students to gain access to the full suite of Intranet resources from sites outside campus.

The Centre's Supercomputing and Visualisation Unit had a busy year servicing more than 300 research projects ranging in disciplines from engineering to finance. Monthly peak usage of its high performance computing resources was up 27 per cent.

### NUS Libraries

The year saw NUS Libraries consolidating efforts to improve its facilities and services in support of the community's scholarly pursuits and research activities. The newly-renovated CJ Koh Library was an enhancement in this direction.

The Libraries' collection at 30 June 2002 stood at 1,194,902 unique titles consisting of 1,129,259 print titles, 17,795 electronic titles (including 1,207 CD-ROM databases), 19,423 media programmes and 28,425

microform resources. Total loan transactions exceeded 1.45 million loans while library membership increased by 7.7 per cent to 54,291.

The Libraries' online collection and services were the fastest-growing sector, registering a hefty growth of 121.6 per cent over the last review period.

#### NUS Museums

Installed in its newly-opened premises, NUS Museums found itself well-placed to become a major player in the cultural life of the campus community and the nation. Visitors to the Museums' dedicated premises at the annexe of the University Cultural Centre averaged 2,000 a month, which was the number received in an entire year in their previous premises.

As befits a milestone year, the Museums launched several major initiatives which raised its visibility and service levels. The South and Southeast Asian Collection was installed for display after being in storage for 13 years. A Visiting Exhibition Gallery at the Concourse Level caters to short-term exhibitions.

The collection at Ng Eng Teng Gallery, which already houses the most comprehensive collection of works by a single artist in Singapore, was enlarged further when it received an additional 162 pieces of artistic expression in a bequest by the late sculptor.

#### Office of Admissions (OAM)

OAM had a challenging year fine tuning its admission processes and services.

The office was actively involved in the setting up of an on-line admissions application system. To be in place for the 2003 admissions exercise, it will facilitate the electronic applications of students from all over the world.

OAM administered the award of about 430 scholarships to new undergraduates who gained admission in the year.

#### Office of Alumni and Community Relations (ACR)

Greater strides were made by ACR to boost the number of donated chairs to the University. The *Toh Chin Chye Professorship in Molecular Biology* and the *Class of '62 Professorship in Life Sciences* were among the professorships that were endowed in the year.

In line with the University's positioning of building synergies, ACR and its counterpart at the Australian National University jointly organised a lecture on education and business in the globalised world.

#### Office of Estate and Development (OED)

OED continued to play a critical role in the development of a comprehensive physical infrastructure conducive to living and learning at NUS.

The second phase of the \$322 million Campus Upgrading project was in full swing with the upgrading of buildings, refurbishing of lecture theatres and improving of road works to improve traffic flow within the campus.

Student and staff housing continued to be a major focus. Construction work was ongoing to complete the new premises of Kent Ridge Hall and Sheares Hall by year end 2002. A progressive upgrading programme was also in progress to refurbish staff apartments at Kent Vale.

More food outlets and kiosks were opened in the year increasing the offering of food choices on campus. With the community becoming more cosmopolitan, the number of outlets serving international cuisine has doubled.



The NUS community inspired by the vision of a global knowledge enterprise is boundaryless and connected in their collective effort to remake the University.

## Inspired by People The Campus Community

The University is a microcosm of the global knowledge community with its members possessing the resourcefulness and versatility to respond to the challenges of the fast-changing global economy.

As NUS surges towards becoming a global knowledge enterprise, it is driven by the commitment and fraternity of its stakeholders. A new mission and vision provided the blueprint for their delivery of the University's brand promise. The bonds between students, faculty and alumni were strengthened in the course of the year as the University stepped up its initiatives to encourage tripartite participation in university-wide events.

### Staff Matters

As in education, the development of staff potential to the fullest came into sharper focus in the year. There was a 32 per cent increase in the number of faculty and staff who underwent training during the year. A total of 3,036 staff members attended in-house training courses and 1,504 attended externally-conducted programmes, both in Singapore and abroad. The number of faculty members who attended conferences totalled 1,296 while the number who went on sabbatical and study visits came up to 702.

Aside from training to raise staff quality, the University also stepped up the process of identifying quality staff for recruitment and retention. Administrative and professional staff were brought under a performance-based, market-driven remuneration scheme similar to the one introduced earlier for faculty members. Following a major review tied to the implementation of the new remuneration scheme, certain administrative departments were restructured, more procedures were streamlined and some functions were decentralised to the faculties.

Faculty members came under a new and more transparent policy for appointment, promotion and tenure. The new system calls for the academic community's participation and ownership of best practices in university governance. It takes into account evaluation of peer review committees at department, faculty and university level as well as those of external reviewers.

Industry perspectives assumed a new importance with the underscoring of the entrepreneurial focus in the University's teaching and research core competencies. Adjunct appointments rose by 12 per cent from the previous academic year to 150. As in previous years, the Faculties of Medicine and Engineering had the highest numbers of adjunct appointments with the former topping the list by a long stretch at 57 appointments.

Staff's commitment to work improvement and productivity continued to be strong as indicated by the 2,464 suggestions channelled through VOICE, the University's online staff suggestion scheme.

At the National Quality Circles Conventions, six teams from the University received two gold and four silver awards in the newcomer category. On the home front, recognition of service excellence was formalised through the launch of the Quality Service Awards. Five staff members were singled out for the inaugural awards and two more cited for commendation.

The University continued to make good progress in its collaboration with the Ministry of Education on the Quality Assurance Framework for Universities (QAFU) project. It has identified a total of 32 goals and their performance indicators.

### Student Matters

Integrated living and learning defines student life at NUS. The NUS learning experience balances intellectual development with social and personal growth. At the individual level, broad-based education

is translated into well-rounded individuals with real-world skills to achieve their personal best in the global arena.

Awards received by NUS students in the year mirrored their versatility. Engineering student Jovin Kumar captured the first prize at the *Fourth Asia Pacific Cup English Presentation Contest*. Medical student Alfian Sa'at was honoured with the National Arts Council's *Young Artist Award for Literature*. On the sports field, Arts students UK Shyam and Andrew Fang took the silver medal in the 100-metre sprint event and the bronze medal for bowling respectively at the *Southeast Asian Games*.

The awards that best describe the profile of the NUS students are those in recognition of their community service and volunteerism. Several were received in the review period by the NUS Students' Union Volunteer Action Committee (NVAC). They were the judges' choice for the *Rotary Club's Student Community Service Awards 2001* and the *Singapore Youth Award 2002 for Community and Youth Services*. The last is particularly exceptional as it is the nation's highest recognition for achievements accomplished by those under the age of 35.

The pursuit of excellence tempered with a strong sense of community has long been a hallmark of the NUS student community that it has become a University tradition. In the review period, student groups organised no less than 12 charity and community service projects raising more than half a million dollars. The main event of the student's calendar year, the *Rag and Flag Day*, netted a record-breaking sum of more than \$430,000 for 20 charity organisations.

Steeped in the NUS culture of pushing frontiers, NUS students have extended their service engagement across boundaries. Equipped with self-raised funds, they were spotted in Cambodia, mainland China, Tanzania and Thailand helping local communities build medical, educational and communal facilities. Students accompanying a national expedition to conquer the 6,024-metre high Chulu West in Nepal paid tribute to the spirit and drive of their alma mater by planting the NUS flag at the summit.

### Residential Learning

Residential learning is an integral part of the NUS educational experience. In the familial setting of hostel life, learning is enriched as living skills are honed through community living, shared experiences and social interactions. Residential learning opportunities were provided in the year by six residential halls, two student residential blocks and the Prince George's Park Residences (PGPR).

The newest kid on the block, PGPR, is indicative of a new generation of independent hostel living. Designed as a self-contained campus village, it is oriented towards promoting interaction and social discourse where life-long ties are established. Aside from the student lounges, reading and seminar rooms, the facilities include fully-equipped self-catering kitchens, an auditorium, a gymnasium, a 500-seat multipurpose hall, an air-conditioned food court and a mini supermarket.

Established halls like Kent Ridge Hall and Sheares Hall are moving with the times too and have started preparations to move to new premises that offer a more contemporary lifestyle like electronic card access security systems.

Against this tide of change, hall activities that are cherished university traditions continued to be upheld. The academic year was lived out in the halls with a year-long calendar of events such as *Orientation Week*, *Rag and Flag Day*, *Annual Dinner and Dance*, hall productions, *Mid-Autumn Festival* celebrations, *Inter-Hall Games* and *Cultural Nights*.

Similarly, there was no let up in activities unique to the culture of each hall that gave its residents their particular brand of *esprit de corps*. Freshmen at Raffles Hall continue to observe their afternoon tea ritual just as their predecessors did; the Eusoff Voluntary Corps is still as passionate about their community projects, King Edward VII continues to take great pride in its annual production and Temasek Hall remains big on artistic and cultural expressions.

It is by combining the best of the new and old, the fusion of a pioneering sense of adventure rooted in strong ties to the past that NUS moves ahead to remake itself as a global knowledge enterprise.

# NUS Global Knowledge Enterprise

## High Fives in 2005

NUS will celebrate its 100th anniversary in 2005. As a global knowledge enterprise, it will have a different landscape, mindset and culture from the medical school which was established in 1905.

Making a difference will be the following targets the University has set to achieve by that time:

- one in five students will be abroad on student exchanges, engaging in cross campus study or research stints in the University's partner universities;
- one in five undergraduates will be an international student;
- one in five students will take an entrepreneurship module; and
- five NUS Overseas Colleges will be established in the world's leading entrepreneurial hubs to give students first-hand experience of the locations' unique work culture.