PREPARING FOR TAKE-OFF

Excitement is mounting as HKUST’s first group of postgraduate students prepare for graduation.

A major milestone in the life of a student, graduation is a culmination of their academic achievement. For many it also marks a transition from scholar to wage-earner. For HKUST students graduating this June it has an even greater significance. In the words of Carmensita LAI, an MBA student, “This graduation is like the first page of history”.

Students graduating this year have been the pioneers of the University. They have grown with the University, making do while essential equipment was installed, while the library gathered its collection, and while basic facilities came on line. With determination, resourcefulness, and a willingness to accept challenges — the very qualities that led them to seek out opportunities at a new university — they have thrived on the experiences they’ve gained at HKUST.

Dr W. K. WONG, Postgraduate Coordinator in the Department of Biochemistry, observes that his students “have demonstrated interest, motivation, ingenuity, and dexterity in their postgraduate work, particularly in their research. They are well trained and prepared to achieve their goals”.

Pro-Dean Ernest SCALBERG of the School of Business and Management says of his graduating MBA students, “If companies can use them properly, they will be pathfinders”.

Active involvement in the progress of the University has strengthened ties among students, faculty and non-teaching staff, building a sense of loyalty that inspires HKUST’s prospective graduates as they look ahead to the next stage of life. In the words of MBA student Eddie CHOW, “As first graduates of the University we have a responsibility to show the quality that this University can produce. We are ambassadors of the University”.

(Continued on page 8)
PROGRESS REPORT FROM THE VICE-CHANCELLOR AND PRESIDENT

It seems like only yesterday when I gave a talk in April 1988 at the Inauguration Banquet of the University Council. In that talk, “Profile of a Graduate”, I told the story of a Mr. Lo Wing Keung, who had graduated from HKUST in the year 1996 and gone on to a successful career by 2001.

Again, it seems like only yesterday when, in late September of 1991, our first students arrived on campus for orientation. Many looked bewildered and a little frightened. A few days later classes began. Quickly they were thrown head over heels into a new regimen of lectures, homework, and quizzes.

A couple of months from today, this young University will be awarding master’s degrees to some 60 students — our first graduates. These young men and women have the honour of going into the world as our first “products”, their postgraduate training the result not just of their own hard work, but also of the efforts of a scholarly, diligent, and dedicated faculty that has taken up the challenge of creating a world-class research university of technology here in Hong Kong. This faculty has by now reached the number, and is still growing at an average rate of 10 new members per month.

That’s Hong Kong for you, always moving at lightning speed.

STUDENT PROFILE

Our present enrolment stands at 1,747 undergraduates and 502 postgraduates. Of the postgraduate students, one-half are full-time.

The cover story of this issue conveys the experience and observations of some of our graduating master’s degree students. In addition, I would like to fill out the overall picture of HKUST’s student body by presenting some interesting facts about our current undergraduates.

- Close to 2/3 entered the University at age 18-19. About 1% are classed as “mature” students, meaning over 25.
- In 1991/92, only 27% were women. In 1992/93, over 39% of our new students were women. A significant majority of the students enrolled in the School of Business and Management are women.
- The average number of family members living together at home is 5. About 60% live in government subsidised housing. Some 45% have neither a room nor a desk at home to call their own.
- Only slightly more than 13% of the fathers and 6% of the mothers received post-secondary education; but 40% of our students have siblings attending post-secondary institutions.
- 66% chose their major on the basis of interest in the subject. 23% made their choice based on career prospects.
- Almost 90% have worked in part-time or full-time jobs.
- 87% have travelled outside Hong Kong. Over 20% have been to countries outside China. Almost 6% studied outside Hong Kong for at least one academic year.
- Close to 80% of the families have no plans to emigrate even given the opportunity.

FACULTY PROFILE

In the Supplements that come with these Newsletters, we have been introducing our new faculty members as they come on board. What I would like to do here is to share some impressive statistics.

- Of the 282 faculty members we recruited by March 1993 at the rank of Lecturer and above, all have (or will have, by the time they arrive to join the faculty) earned doctoral degrees.
- The 10 universities that have contributed the largest number of doctorates to our faculty:
  
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<tr>
<td>UC Berkeley</td>
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<td>UCLA</td>
<td>16</td>
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<td>Chicago</td>
<td>12</td>
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<tr>
<td>Princeton</td>
<td>10</td>
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<td>Caltech</td>
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  These universities account for exactly 100, or more than 1/3, of our faculty’s doctorates.

  Following closely are:

<table>
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<th>University</th>
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<td>Illinois</td>
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<tr>
<td>Minnesota</td>
<td>6</td>
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<tr>
<td>Purdue</td>
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<td>Cornell</td>
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<td>Harvard</td>
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<td>USC</td>
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  The 24 institutions listed above account for a total of 167, or 60%, of our faculty’s doctorates.

- More than 1/3 of our faculty (96 in number) received additional postdoctoral training, 46 of them from the 24 institutions listed above.
- More than 85% of our faculty have earned their doctorates, pursued postdoctoral studies, or taught at the world’s leading research universities of science and technology, defined as a group of some 60 to 70 institutions including those ranking in the top 1% in the United States.
- In terms of educational or family history, 40% were Hongkongers, 14% grew up in Taiwan, and 18% grew up on the Chinese Mainland. The remainder, 28%, are mostly non-Chinese. (Some in the “non-Chinese” group are seconded or visiting faculty.)
- A number of regular faculty contracts (typically 3 years in length) will be expiring in June or December of 1993. So far not a single faculty member has turned down the University’s offer to renew.
- Many senior faculty initially joined us while on leave from their home universities. Standard practice in the academic world limits leaves of absence to 1-2 years. As a result, those
HKUST's booth was the object of much interest at Education and Career Expo '93, a four-day event that drew over 165,000 visitors to the Hong Kong Convention Centre on 18-21 February 1993. In addition to obtaining literature about the University distributed at the booth, the public had the opportunity to attend four seminars led by HKUST faculty members for prospective undergraduate and postgraduate students.

Mr Antony LEUNG, Citibank's Country Corporate Officer for Hong Kong, dedicated the Citibank Lecture Theatre on 9 February 1993 at a ceremony acknowledging Citibank's $7.5 million donation to establish the Citibank Endowment Fund in support of programmes at HKUST's School of Business and Management.

Dr John S. THEON of the National Aeronautics and Space Administration delivered the keynote address at Environment '93, an international conference organised by HKUST to explore the uses of satellite remote sensing to monitor environmental change. The conference attracted participants from Asia, North America, and Europe and was held on the University campus from 3 to 6 March 1993.

Student societies transformed the Atrium into a colorful Flea Market on 18-19 February 1993 as the spring semester got under way. Organised by the Business Students' Union, the inventive fundraiser was the first occasion of what is expected to be an annual event.

--- continued from page 2 ---

entering a second contract with us must sever formal ties with their previous institutions. Hence it can be said that the University has been very successful in retaining their services.

The soul of a University is its Faculty. The most satisfying aspect of founding this University has been our success in recruiting a faculty whose scholarship is truly world-class. Can we keep up this quality while continuing to add, on the average, 10 faculty members per month for a decade? Once recruited, will they stay? Are the academic environment and level of support in Hong Kong sufficiently strong to sustain their research efforts? These are the challenges we face daily. There can be no let up and there won't be. That's Hong Kong for you.
BUILDING A UNIVERSITY

Department of Electrical and
Electronic Engineering

A visit to the Department of Electrical and Electronic Engineering is an opportunity to meet a highly coordinated team of scholars whose research interests build on Hong Kong's present economic strengths and also offer a glimpse of things to come.

As the Department Head, Professor Peter CHEUNG, explains, this congruence was by no means a matter of chance. "We've chosen two areas to concentrate on. Electronics as a market segment is second only to textiles among Hong Kong’s exports, and microelectronics is a large part of today's electronics market. It's also a major growth area in Southeast Asia. Our second focus is information and systems technology. Because Hong Kong is an important financial and commercial center, information technology and telecommunication are crucial to its future".

By selectively focusing its resources in these areas, the Department is striving for the kind of research results that will enable it to establish a reputation for academic excellence within three to five years. As Professor Cheung puts it, the strategy is to "select the right areas and then staff them with the right people". Certainly an indication that the Department is on the right track is the fact that it has a perfect record so far in the annual competition among tertiary institutions for research grants in Hong Kong — all its research proposals have been successfully funded.

Microelectronics

In the world of microelectronics and semiconductor devices, the almost startling advances of recent years have come about through increasing mastery of the techniques necessary to build denser, faster, and more efficient integrated circuits, or ICs. These multilayer silicon wafers, containing the equivalent of thousands or millions of transistors, are ubiquitous in the 1990s, providing the controlling "intelligence" in everything from the orbiting satellites that carry our television signals to common appliances such as personal computers, calculators, and steam irons.

Research aimed at improving the performance of ICs attacks the problem on several fronts, including component materials, manufacturing methodologies, and design principles. In addition, there has been a constant push to extend the field of application of ICs to new areas, not least of all the development of smarter, more capable tools for the design and implementation of new types of integrated circuits. With the future of Hong Kong’s electronics industry hanging in the balance, researchers in the EEE Department are working in all these areas, especially the design and fabrication of ASICs (application specific integrated circuits) for use in areas such as medical electronics, speech processing, and telecommunication.

When the logic of an IC is worked out, the design is usually taken to a processing facility for fabrication. (While it's possible to test a design through a computer simulation, only an actual test can validate it in the end.) For many types of ICs, researchers at HKUST need go no farther than the University's Microelectronics Fabrication Centre (MFC), a centralised facility which provides a complete clean room environment for microelectronic processing, a unique capability among Hong Kong's tertiary institutions.

The existence of the MFC puts HKUST in very elite company. Few universities in the world have the resources to be able to incorporate in their teaching programmes a systematic approach to microelectronics such that a complete understanding of integrated circuits — from design to fabrication to testing and validation — can be taught to students. In this light, it might not be so surprising to discover that some postgraduate students are chosen to study at HKUST in preference to opportunities overseas.

Among the novel semiconductor devices being fabricated at the MFC are optoelectronic integrated circuits (OEIC), which are transmitters/receivers for optical signals integrated on a single silicon chip. Such devices lie at the very boundary of microelectronics, converting information based on the flow of electrons to information conveyed by photons, or quanta of light.
Extending this research, Professor Hoi S. Kwok works with lasers and advanced new materials to fabricate smart holographic lenses that will make it possible to connect chips by optical means. In other words, the metal lines used on conventional printed circuit boards will be replaced by holograms that are “smart” in the sense that they can be programmed or placed under the active control of a computer. These techniques are essential for the implementation of both optical computers and optical neural networks that attempt to model network management on the way the brain works. If this line of research is successful, it will pave the way to the information technology that will likely be dominant in the next century.

**Information and Communication Technology**

Telecommunication is big business, and getting bigger. Forecasts predict that one segment of the Asian market alone — mobile communication — will triple in size by the year 2001, growing to a US$28 billion business outside China. What the figure might be including the market in China seems to be anyone’s guess.

At HKUST a research project led by Professor Ruey-Wen Lui has been funded by Hutchison Telephone to investigate problems in wireless communication that impact the operation of mobile phone systems in Hong Kong. The research team will attempt to model the complexity of radio propagation in an environment with many tall buildings and hills, and also the characteristics of a system optimised to a language (or languages) other than English. While directly applicable to the situation in Hong Kong, this research will have far-reaching significance as wireless communication takes its place as an integral part of the telecommunication network of the 21st century.

Other research projects in digital signal processing, image compression, video technology, and network control and management similarly point toward the common goal of research efforts in these areas — the creation of a global telecommunication network — and are supported by the Hong Kong Telecom Institute of Information Technology. Surprisingly enough, there is already wide agreement on the technical requirements of such a network. Researchers envision an integrated high-speed digital network with the capacity to carry simultaneous voice, data, and video transmissions. For the consumer, a single fibre optic cable would provide telephone, fax, data transmission, television, and videophone connections, plus any other information services that might come into use for business or entertainment. In addition, the consumer’s link to the network would be enhanced by a wireless communication option, allowing fully mobile access.

It is a compelling vision, but the technical problems that must be overcome before the vision becomes a reality are by no means trivial. Dr Danny Tsang, who is working on issues of network control and management, thinks the various technologies contributing to an integrated high-speed network might come together by the year 2005. Until then we can expect to see steady incremental improvements in the information services currently available with new services such as greatly expanded pay-per-view options coming on line.

**Robotics**

Readers familiar only with industrial or Hollywood images of robots might be surprised to see real robots running, jumping, flipping over in midair like a cat, and turning somersaults. These feats represent the current state of the art in robot motion, one of the three main research areas in robotics. The other two are instrumentation, which deals with system integration, and robot sensing.

Among researchers in robot motion, Dr Zexiang Li has gone a little deeper than most in penetrating to the principles that explain and prove how a moving robot can maintain its balance. By deriving mathematical models he has given robot motion a firm foundation and opened the possibility, should anyone wish to do so, of building a robot gymnast that could vastly outperform any Olympic medalist.

His current research deals with the problem of robot manipulation: how to design a multifingered robotic hand that can grasp and manipulate objects. The goal is to create a hand that has the dexterity of a human hand but can outperform it in strength and precision. With such a prospect to contemplate, we can leave blank for the moment the possible applications for the “HKUST Hand” — named for the site of the laboratory in which it will be created. It is enough to imagine that industry representatives will be eager to have their say one day as to how such a hand might be used.

In five years the Department expects to be in full stride with 72 faculty members, an enrolment of 1,000 undergraduate and postgraduate students, and a technical and research staff of 100. Research in microelectronics will be supported by a new Institute of Micro-Systems while the Hong Kong Telecom Institute of Information Technology will guide research in information and communication technology. In addition to offering degree courses in electrical and electronic engineering, the Department will be contributing to several interdisciplinary efforts: a joint BEng degree in computer engineering, offered with the Department of Computer Science; a teaching/research programme in robotics and CAD/CAM, offered with Computer Science, Industrial Engineering, and Mechanical Engineering; and an interdisciplinary degree programme in bioengineering that will probably be the first such programme in Hong Kong.
PHASE II: COMPLETING THE CAMPUS

Imagine that you have followed a huge construction project for 27 months and are ready to take possession of its new buildings and facilities. For Mike Hudson, Director of the University’s Estates Management Office, that moment came on the 30th of November, 1992, when the project manager in charge of construction, the Royal Hong Kong Jockey Club, began the handover of Phase II of the HKUST campus.

“Construction work was completed ahead of schedule and under budget”, says Mr. Hudson. “For us the move into Phase II began with modifying the locks for 4,000 rooms. That meant 12,000 keys”.

A myriad of additional tasks, from cleanup to fitting out to signage, followed in due course, all with the aim of preparing some 82,872 square metres of floor area for use as the offices, classrooms, laboratories, and student and staff residences that make up Phase II of the HKUST campus.

For the members of the academic community ensconced in temporary quarters in Phase I, the arrival of Phase II provided a welcome extension of that most precious commodity in academic buildings — space. Additional floor space exceeding the amount previously available in Phase I could now be used to create the research and teaching laboratories essential to carrying out the University’s mission. Academic departments — all steadily adding new staff — could grow on schedule to fill their establishment.

Only one “small” matter had to be solved first. The departments and laboratories already functioning in Phase I had to be moved into their new quarters in Phase II — a delicate process summed up by that piquant term decanting.

Decanting

Of the 400 or so laboratory spaces contained in Phase II — almost all with complex requirements — attention was first given to the teaching labs, so that they would be ready for use at the beginning of the spring semester. The Centre of Computing Services and Telecommunications busied itself to ensure that all of Phase II would be network-ready by 15 March, the date chosen to begin the decanting of offices.

The psychologies involved in moving are very nearly universal. Because no one likes it, people on the whole tend to be quite cooperative, hoping thereby to minimise the disruption. This has certainly been the case with the moving of department and faculty offices, which so far has been judged by most to have gone far better than expected.

At an average of two to three days per department, the schools of Science and Engineering have been successfully decanted at the time of this writing, with Business & Management and Humanities & Social Science about to undergo the process. To its considerable surprise, EMO has even received two letters of congratulation from grateful departments attesting to its efficiency.

The real difficulty involves the 60 to 70 research labs created in Phase I that need to be moved into Phase II. This part of the procedure has not gone as smoothly as was hoped, with 40 laboratories decanted so far and the others waiting because of a concern for safety and the need for 100% reliability in functioning. “What it amounts to”, Mr. Hudson explains, “is fine tuning of the flow rate in fume cupboards and things like that. You could say we’re involved in tuning up a very sophisticated building, and that takes time to do it right”.

Housing

Phase II adds three undergraduate residence halls with 1168 places to the one hall with 554 places already completed in Phase I. It also adds one new postgraduate hall, bringing postgraduate accommodation up from 120 to 356.

These halls were all occupied at the start of the spring semester. “The students were pleased to have been able to move in by the beginning of the semester”, says Pandora Yuen of the Student Affairs Office, “so they have been tolerant of minor inconveniences. As with any new building, you expect to encounter problems from time to time, but on the whole our experience has been quite smooth”.

In effect, virtually every student who wishes to live on campus has been able to do so this semester, but starting next fall, the percentage will decline as the size of the student body increases with progressively larger incoming classes. It is estimated that about 60% of the student body will be able to live on campus in 1993-94; about 40% in 1994-95; and 30% thereafter, when the student body reaches its full establishment of 7,000.

Because students not living on campus often have to spend two
hours or more in daily travel time, and because a technological university frequently requires long sessions of laboratory work, the University Council has considered it appropriate to seek to provide housing for a greater proportion of the student body than the 30% which the Hong Kong Government now supports. Since the University is fortunate to have enough land, the Council's view is that additional residence halls for students should be built when funding becomes available. A request will be submitted to the Government.

Staff housing has been augmented with 8 townhouses and 48 flats for senior staff, ready for occupancy in early March, and 74 flats for junior and research staff, slated for occupancy in May and June. These additions bring the total accommodation on campus to 182 units for senior staff and 158 for junior/research staff.

In addition, the University leases apartments conveniently located in one development near the campus for staff who cannot obtain a flat on campus or who prefer off-campus housing. To meet the shortage of housing on campus, plans to build two more apartment blocks with a total of 66 units for senior staff are currently being developed and await approval from Government.

Sports Facilities

The new facilities in the Outdoor Sports Complex near the waterfront are among the benefits of Phase II that were most eagerly awaited by students and staff. The mini-soccer pitch and tennis courts were the first to open, in late December 1992, and the tennis courts remain the most popular facility with close to 90% utilization.

In January the Athletics Field opened as a multipurpose field that can be used for baseball and hockey in addition to its primary use as a soccer pitch. The bright green Poligras surface "has definite benefits from a management point of view", says Kenny Chow of the Student Affairs Office, "in that it allows year-round use with almost no maintenance other than daily watering". If the Poligras dries out, it stiffens and becomes more liable to cause burns.

Ringing the soccer pitch is a synthetic surface track which also requires little maintenance other than a once-a-month rinsing. Scheduled for the weekend of 1-2 May is the first annual athletic meet for HKUST students and staff.

A new outdoor basketball court opened in late March and is used mainly for individual practice and informal competition. Inter-school and inter-hall competitions are held on the Indoor Court.

The Olympic-size swimming pool opened on 1 April and will remain open through November. It is a 50-metre pool with one-metre and three-metre diving boards. About half a million gallons of water are required to fill the pool, and the water is treated with ozone rather than the more common chlorine. The ozone chemical treatment makes the water more pleasant for swimmers and is also more economical in the long run.

In addition to these facilities, four or five indoor squash courts will be built at the LG4 level near the car park with privately donated funds. These courts are expected to be ready early in 1994. Also being explored is the feasibility of building another fitness room and of using the jetty at the waterfront for water sports, including rowing and possibly wind surfing.
PREPARING FOR TAKE-OFF

Physics MSc students Cheng Chi Ho and Ng Kwai Kong with their research supervisor, Dr Ng Tai Kai. "Faculty and students are very close at HKUST", says Ng Kwai Kong. "We feel free to discuss our ideas with them and this gives us the feeling that we are participating actively in the University".

Computer Science MPhil student Anthony Ho, who is working on stereo computer vision in robotics. "After graduation I'll work for a few years in a software house and then come back for further study. Computer science is application oriented and by working I'll be better able to choose my area of research", he says.

"Educational qualifications are important when you are looking for a job", says MBA student Fion Lo, "but most important of all is experience".

Electrical & Electronic Engineering MSc student Tso Shiu Wing put aside plans to study overseas when HKUST opened. "Here I've had the opportunity to get involved with workstations, gaining experience relevant to the outside job market. I could be a project engineer in the field of telecommunications, a development engineer for data communications, or work in some sort of computer-assisted support", he says.
ACADEMIC APPOINTMENTS

DEAN OF SCIENCE and PROFESSOR OF PHYSICS
Leroy L. CHANG
(張立綱教授)

Professor Leroy L. CHANG comes to HKUST following a distinguished career as a research physicist at IBM’s T. J. Watson Research Centre. Research groups that he led at IBM were at the forefront of efforts to investigate the electronic and optical properties associated with ultra-thin materials, opening up a new area in condensed matter science.

Professor Chang received his PhD in solid state electronics from Stanford University. A member of the U.S. National Academy of Engineering, he has published over 200 scientific papers and holds more than 20 patents for his discoveries. In 1985 the American Physical Society awarded him its International Prize for New Materials. In 1989 he received IBM’s highly prized Corporate Award for outstanding contributions and inventions throughout his career. In 1990 the Institute of Electrical & Electronic Engineers honored him with its David Sarnoff Award.

In May of this year Professor Chang will travel to Philadelphia to receive the prestigious Stuart Ballantine Medal from the Franklin Institute for his pioneering contributions to the study of quantum well and superlattice heterostructures in semiconductor physics.

DIRECTOR TECHNOLOGY TRANSFER CENTRE
Gareth THOMAS
(唐格理教授)

Professor Gareth THOMAS is one of the few active scientists to have been elected to both the U.S. National Academy of Sciences and the National Academy of Engineering. Prior to joining HKUST, he was the creator of the National Centre for Electron Microscopy at Lawrence Berkeley Laboratory and Professor of Materials Science at the University of California, Berkeley, where he also served as Graduate Dean and Vice Chancellor of Academic Affairs.

Recently he was appointed to the Board of Electors for the Goldsmiths Professorship at his alma mater, Cambridge University, where he received his PhD and Sc.D. He is an Honorary Professor at the Beijing University of Science and Technology and a recipient of the Confucius Memorial Teaching Award. He was for 12 years a member of Taiwan’s Science and Technology Advisory Group and played a key role in the creation of its Materials Research Laboratory.

Professor Thomas’s ongoing research is in the design of new materials such as high-strength steels, aluminium alloys, ceramics, and high-energy magnets.

PROFESSOR AND HEAD DEPARTMENT OF CHEMICAL ENGINEERING
Po Lock YUE
(余寶樂教授)

Professor Po Lock YUE has joined HKUST from the University of Bath where he was a Reader in the School of Chemical Engineering. Professor Yue obtained both his BEng and his PhD from McGill University. His chief research interest is in photoreaction and photoreactor engineering and its applications for clean technology and environmental protection. Whilst at the University of Bath he headed one of the world’s most active interdisciplinary research groups in this field. Other projects led by Professor Yue include research in novel catalytic reactors, computer-aided environmental impact assessment and waste minimisation, and the application of computer process simulation and knowledge-based systems.

Professor Yue has also been active in teaching and administration. At the University of Bath he taught almost every chemical engineering subject on the undergraduate curriculum, initiated new courses, implemented computer-aided teaching programmes, and contributed to the use of computers in process design and other subjects on the curriculum.

PROFESSOR CIVIL AND STRUCTURAL ENGINEERING
Howard Ju Chang HUANG
(黃汝常教授)

Professor Howard Ju Chang HUANG has joined HKUST after serving 25 years at the University of Missouri, where he was Director of the Environmental Research Centre for 14 years and Head of the Environmental Engineering Programme for 11 years. He received his BS in civil engineering from National Taiwan University and both his MS and PhD in environmental engineering from the University of Texas. The main focus of his work is the solution of environmental problems associated with water pollution and industrial wastewater treatment.

Professor Huang served for 14 years as a consultant to the US Environmental Protection Agency. He also served as an environmental consultant to many international organizations as well as to over 30 industrial and engineering firms. In 1976 he was elected Young Engineer of the Year in Missouri. In 1979 he was the recipient of the Walter L. Huber Waste Treatment Research Award. He is a fellow of the American Society of Civil Engineers, a Diplomate in the American Academy of Environmental Engineers and is listed in Who’s Who in Engineering in the USA.
Professor William TAY comes to HKUST after serving as Professor of Comparative Literature and Director of Graduate Studies in the Department of Literature at the University of California, San Diego. He received his BA in Western languages and literature from National Chengchi University in Taiwan and his PhD in comparative literature from the University of California, San Diego.

Prior to joining UCSD, Professor Tay taught at the Chinese University of Hong Kong, where he headed the Comparative Literature Research Unit. He has written and contributed to numerous books in English and Chinese on topics in Chinese and comparative literature and has also edited anthologies of modern Chinese fiction and poetry. He serves on a number of editorial committees, including those for *Renditions*, *Modern Chinese Literature*, *Tamkang Review*, and other journals in Taiwan. He is an honorary fellow of the Research Centre for Modern Literature in Chinese at Lingnan College, and was the 1991 recipient of the CCK International Foundation Research Award.

Dr Richard K. HAYNES has joined HKUST from the University of Sydney, where he was a Reader in Organic Chemistry. He received both his BS and PhD degrees from the University of Western Australia.

His fields of research include the development of new antimalarial agents from the Chinese herbal antimalarial *qinghaosu*, the preparation of new vitamin D compounds as potential agents for the treatment of cancer and AIDS therapy, total synthesis of prostaglandins for birth control and other biologically active natural products. In the antimalarial area, Dr Haynes is working with the Rhone-Poulenc Rorer Company, the Kunming Pharmaceutical Factory, and WHO. Another interest involves the development of new radiolabelled drugs for positron emission tomography (PET) in clinical situations.

Dr Haynes carries out collaborative research and consults with the Australian Nuclear Science and Technology Organisation. He has published some 70 scientific papers and holds one world patent and two provisional patents.

Dr Chi-Ming CHAN has joined HKUST as Reader in the Department of Chemical Engineering. Prior to his appointment, he was Project Manager and Senior Scientist in the Circuit Protection Division of Raychem Corporation, in charge of developing new conductive composite materials and products for electrical overstress protection of motors. He was elected as a Raychemer for his contributions to the company's intellectual property. In addition he taught courses on polymer surfaces and rheology of surface coatings for the Society of Plastics Engineers.

Dr Chan graduated from the University of Minnesota with a B.S. in chemical engineering before going on to earn his MS and PhD in the same subject at the California Institute of Technology. In addition to scientific papers published in leading journals, he has written a book on polymer surface techniques (currently in press), and he is a co-author of another book entitled *Low Energy Electron Diffraction: Theory and Experiment*. His research work is protected by nine patents.

He is married and has two children. He and his family are active in the Christian church.

Dr Samuel T. CHANSON comes to HKUST from the University of British Columbia, where he was Professor and Director of the Distributed Systems Research Group in the Department of Computer Science. Before joining UBC, he was a faculty member at the School of Electrical Engineering in Purdue University. Dr Chanson received his BS from Hong Kong University and his MS and PhD in electrical engineering and computer science from the University of California, Berkeley. His research interests include networking and computer communications, distributed operating systems, parallel processing, and computer systems performance analysis. He has been involved in several major industry and government sponsored research projects and is the UBC project leader in the Canadian government's Centre of Excellence initiative to research the testability and reusable communication software.

Dr Chanson has given more than 65 invited seminars and lectures and has published an equally large number of papers in journals and conference proceedings. He has also consulted extensively for government and industry.
SENIOR LECTURER IN SOCIAL SCIENCE

Jow Ching TU
(涂肇興博士)
1980 PhD
1989-92
University of Tennessee (Demography)
Professor and Senior Research Associate, Department of Sociology and Centre for Social and Demographic Analysis, State University of New York at Albany
Population changes and socio-economic development; family demography; Chinese historical demography.

SENIOR LECTURER IN HUMANITIES

Leonard K.K. CHAN
(陳國球博士)
1988 PhD
1991-93
University of Hong Kong (Chinese Literature)
Senior Lecturer and Department Head, Department of Chinese Language and Literature, Hong Kong Baptist College
Research Interests:
Classical Chinese literary criticism; Chinese poetry and fiction; literary history.

LECTURER IN BIOLOGY

Pei-Yuan QIAN
(錢培元博士)
1991 PhD
1992-93
University of Alberta (Marine Biology)
Killam Postdoctoral Fellow, University of British Columbia
Research Interests:
Marine biology; reproductive and larval ecology of marine invertebrates; environmental pollution, marine aquaculture.

LECTURER IN CHEMICAL ENGINEERING

Chak-Keung CHAN
(陳澤強博士)
1991 PhD
1991-92
California Institute of Technology (Chemical Engineering)
Process Engineer, Ralph M. Parsons Co.
Aerosol physics and chemistry; air pollution; light scattering and Raman spectroscopy.

LECTURER IN ELECTRICAL AND ELECTRONIC ENGINEERING

Aaron W. BUCHWALD
(白伟德博士)
1988 PhD
1989-92
University of California, Los Angeles (Electronic Engineering)
Research Interests:
High speed analog ICS; analog VLSI for communications; fibre optics; neural networks.

LECTURER IN ELECTRICAL AND ELECTRONIC ENGINEERING

Bing ZENG
(曾兵博士)
1991 PhD
1992-93
Tampere University of Technology, Finland (Electrical Engineering)
Postdoctoral Fellow, Department of Electrical and Computer Engineering, Concordia University.
Research Interests:
Signal and image processing; video technology.

LECTURER IN ELECTRICAL AND ELECTRONIC ENGINEERING

Li-Ming LIU
(李黎明博士)
1990 PhD
1991-92
University of Toronto (Industrial Engineering)
Researcher, Department of Industrial Engineering, University of Toronto
Queues, their applications in manufacturing, telecommunication, and service systems.
LECTURER IN ACCOUNTING

Yew-Ming CHIA
(謝耀明博士)
1992 PhD
Research Interests:
Griffith University (Accounting)
Contingency and agency theories; management accounting systems design; behavioural accounting.

LECTURER IN HUMANITIES

Li-fen CHEN
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1990 PhD
Research Interests:
University of Washington (Comparative Literature)
Fiction; poetics; literary criticism; comparative literature; modern literature.

LECTURER IN HUMANITIES

David P. LAWRENCE
(羅大維博士)
1992 PhD
Research Interests:
University of Chicago (History of Religions)
Comparative philosophy; philosophy of religion; cross-cultural interpretation and relativism; Hindu and Buddhist debates about perception, language.

LECTURER IN SOCIAL SCIENCE

Xue-Liang DING
(丁學良博士)
1992 PhD
1992-93
Research Interests:
Harvard University (Sociology)
Lecturer, Social Studies Committee, Research Associate, Fairbank Centre, Harvard University
The transition from communism in Europe and Asia; state-market relationships in East Asian new industrialism.

LECTURER IN SOCIAL SCIENCE

Julian McAllister GROVES
(谷志良博士)
1992 PhD
Research Interests:
University of North Carolina (Sociology)
Controversies surrounding science, technology and ethics; social theory; Hong Kong culture.

LECTURER IN SOCIAL SCIENCE

Irene W.C. ENG
(吳榮昭博士)
1992 PhD
1991-92
Research Interests:
University of California, Los Angeles (Geography)
Lecturer at California State University, Fresno and at Oklahoma State University
Industrial location and regional development.

LECTURER IN SOCIAL SCIENCE

Gerald R. PATCHELL
(百察樂博士)
1991 PhD
1992-93
Research Interests:
Simon Fraser University (Industrial Geography)
Japan Foundation Fellowship, Kyoto University
Economic component of cultural geography; organizational diffusion; mutual development in the creation of regional economies.