20 TRANSFORMATIONAL YEARS

1997 - 2017

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TRANSFORMATIONAL YEARS
1997 - 2017

Contents

Core Park

Foreword

More than 20 years ago, with the encouragement of the Malaysian government, PETRONAS took the first step towards the establishment of one of the country's first private universities.

Universiti Teknologi PETRONAS was officially established on 10 January 1997, and from the very beginning, the vision for UTP has been to be a leader in technology education and a centre for creativity and innovation. The last two decades have seen UTP build a strong foundation and lay the building blocks necessary to fulfil that vision.

The university has marked many milestones over the last 20 years, including accolades and recognition for the standard of teaching, the quality of academic programmes and research achievements. These milestones and achievements would not have been possible without the direction of PETRONAS and the leadership of UTP's previous Vice Chancellors, as well as the contributions of the university Board, Pro Chancellors and Chancellors, past and present. Their experience, influence and guidance cannot be overstated – the university is where it is today thanks to their support and assistance.

Gratitude must also be extended to our partners · the link we have with various industries and institutions both locally and abroad remain pivotal to our success. We are constantly expanding and growing our network and collaborative efforts in the realisation that one of the keys for growth is networking with the right partners.

In commemorating the first two decades of UTP, I would also like to thank and congratulate faculty members and staff for the great concerted effort and achievements thus far.

As we reflect on the achievements and milestones of the last two decades, it is important that we prepare for the future and for the challenges that lie ahead. The university's pioneers realised early on that in building a university, the end is not stationary – the goalposts would constantly be changing as the world and the education sector evolved and grew. And that rings true to this day – the economy and the education landscape today are vastly different from that of two decades ago, which means that UTP needs to not only face the challenges ahead but more importantly, thrive in spite of them. Graduates of today and the future need to be equipped with the necessary tools and skills to navigate the challenges of the workplace of the future, or to become business and job creators.

I am pleased to disclose that UTP has entered a new phase in its journey in which we strive towards global prominence with the aim always to stay relevant. The university aspires to be an internationally recognised university and a partner of choice for industries as well as a respected member of the scientific community by the year 2025.

To achieve this, a number of strategies, action plans and strategic initiatives have been outlined. Some of these have already been rolled out while others will be put in place in the next few years – requiring, once again, tremendous leadership, resolve and commitment from everyone involved.

In striving towards global prominence, we remain steadfast in the principles of integrity, professionalism, cohesiveness and loyalty as we nurture a culture of support, inspiration, contribution and sharing within our university.

In celebrating the achievements of the last 20 years, it is hoped that the accolades and recognition received will be the boost needed to galvanise the team at UTP and propel the university towards realising its aspiration. We have, indeed, much to look forward to.

DATUK IR (DR) ABDUL RAHIM HASHIM
UTP Vice Chancellor

This beautiful lake on campus used to be a mining pond.

Chapter 1

BLUEPRINT

for distinction


UNIVERSITI
TEKNOLOGI
PETRONAS

Universiti Teknologi PETRONAS (UTP) was founded on 10 January 1997 – its vision, to be a leader in technology education and a centre for creativity and innovation.

Twenty years on, the university, located in Bandar Seri Iskandar in Perak has developed into one of the most prominent private universities in the country, offering a wide range of industry-relevant engineering, science and technology programmes at undergraduate and postgraduate levels. The university has produced more than 14,600 graduates, and has garnered numerous accolades in the area of teaching and learning.

In the area of research, UTP collaborates extensively with PETRONAS and other institutions and industries locally and abroad.

The university's achievements of the past two decades reflect the foresight, hard work and sheer dedication and commitment of the university's proponents, leaders, as well as pioneer and current academic and management staff. Their contributions have laid the foundation for the university to soar ever higher towards global prominence, and to leave a meaningful and lasting impact on the oil and gas industry and the country.

The following pages detail the birth of UTP, its early success, challenges and the impact of its pioneers.

Opposite page
UTP's first 20 years have seen remarkable growth and achievement through its strong commitment to excellence and a holistic approach to education.

THE FOUNDING OF UTP

"We wanted to do things slowly and to take carefully considered steps. We wanted to establish a learning hub with adequate funding built in. We wanted our graduates to be more than engineers. The late Tun Azizan (Zainul Abidin) and I were keen that UTP's graduates would not just develop excellence in the field of engineering but have a holistic education."

Tan Sri Mohd Hassan Marican

Pro Chancellor, UTP, 2003–2010 and President & CEO, PETRONAS, 1995–2010

The first day of Ramadan in 1997 fell on 10 January, and to many Malaysians this would be the only significance of the date. For a small group of people at the national oil corporation, PETRONAS, however, it was a day that will forever be etched in their minds for it was on this day that the Malaysian Government formally invited PETRONAS to establish Universiti Teknologi PETRONAS (UTP).

The simple ceremony, held in the podium block of Dayabumi Complex in Kuala Lumpur, marked the official commencement of the national oil corporation's journey into the field of higher education.

The university's achievements in the years since that morning in January 1997 have been nothing short of extraordinary – the most apparent expression of the university's accomplishments is its physical appearance, in particular the stunning academic building, the Chancellor Complex, which received the prestigious Aga Khan Award for Architecture in 2007. But a university is not recognised for physical attributes alone, a fact its founders and proponents realised early on when crafting the university's vision – to be a leader in technology education and a centre for creativity and innovation.

Although the university was formally established in 1997, UTP's founding stretches a few years prior to that – to the early 1990s. This was the time of rapid industrialisation in Malaysia, and the Sixth Malaysia Plan (1992–1996) continued to emphasise the development of human resources to support the country's ambitious industrialisation programmes. It was recognised and understood that the participation of the private sector was instrumental in producing skilled and professional workers that would meet industry's requirements.

Former Prime Minister Tun Dr Mahathir Mohamad says that although the government initially felt that higher education should remain the realm of the public sector, it became apparent that the government could not cope with producing the required skilled personnel for the expanding economy. "So because of that the government decided that private universities should be allowed."

Dr Mahathir, who was Chancellor of UTP from 2004 to 2016, points out that at the time PETRONAS was also expanding and the need for engineers, especially those qualified for the oil and gas industry, was growing. "The government felt that it would be good for PETRONAS to start a university and train its future employees," he says.

The national oil corporation responded positively. Its board led by Chairman Tun Azizan Zainul Abidin and President and CEO Tan Sri Mohd Hassan Marican provided the direction, and gave the green light for the plans and resources invested.

Hassan says education has always been one of PETRONAS's core concerns. "We did not call it CSR (Corporate Social Responsibility) back then," he says. "For us it was more than that. It was the cornerstone of nation building. We invested substantial amounts in education. We believed back then that we had to build human capacity and give people an opportunity and a chance to improve themselves. We did not want to give money for money's sake. Instead, we saw education as a long lasting investment. After all, an educated person would have greater opportunity to contribute to the nation."

Several board members were also actively involved during the early implementation stage including Tan Sri Mohamed Noordin Hassan. He had a unique background when it came to the university's establishment having been Secretary-General to the Ministry of Education prior to his appointment as PETRONAS Vice President of Group Human Resource.

It was Mohamed Noordin, then still at the Ministry of Education, who relayed the news to PETRONAS and the other two Government linked companies (GLCs), Tenaga Nasional Bhd and Telekom Bhd of the government's wish that they start their own universities. He was, prior to his retirement in 1994, responsible for the drafting of the Private Higher Educational Institutions Act.

A year after joining PETRONAS, Mohamed Noordin was tasked with leading a team within PETRONAS to explore the setting up of a university. Other key figures include Ir Mohamed Zohari Shaharun, then PETRONAS Vice President for Technology Resource Management who was brought in to handle the technical issues and Dr Mohamed Ariffin Aton, the then CEO of PETRONAS Research and Scientific Services Sdn Bhd (PRSS) who advised on academic matters and requirements of professional bodies.

Although the government was encouraging the setting up of private institutions of higher learning, the law did not allow these private entities to confer degrees at university level. The plan therefore, was for these GLCs to upgrade the respective training facilities, and to offer diploma and degree courses.

From the top
Tun Dr Mahathir Mohamad
Tun Azizan Zainul Abidin
Tan Sri Mohd Hassan Marican
Datuk Dr Rosti Saruwono
Datuk Dr Zainal Abidin Kasim

"When I was directed to help set up a PETRONAS university, I accepted this unique opportunity gladly. To be a leader in technology education and become a centre of excellence in both creativity and innovation was a vision that was foggy at best in the beginning. UTP's achievements to date are indeed something to be proud of."

Ir Mohamed Zohari Shaharun
Former Vice President Technology Resource Management, PETRONAS

The right time

The national oil corporation responded positively to the government's urging but there were still a few factors to consider. Mohamed Zohari says that in addition to the newly completed PETRONAS Management Training Centre (PERMATA, today known as PETRONAS Leadership Centre) in Bangi, the national oil corporation maintained Akademi Laut Malaysia or ALAM at Linggi in Melaka for maritime training and Institut Latihan Perindustrian Petroleum (today known as Institut Teknologi Petroleum PETRONAS or INSTEP) in Batu Rakit, Terengganu for operators' and technicians' skills training.

"Both needed substantial investments for major uplift in facilities. PETRONAS was also spending a great deal to sponsor students to attend university education locally and overseas. The graduates, however, needed to be retrained to be quality employees before they could be deployed to operations. So there was the need to positively consider building its own university for quality employees," says Mohamed Zohari, who together with Mohamed Noordin, led the steering committee for the establishment of the university.

It was decided that existing entities such as ILPP and PERMATA would continue to focus on their core activities of providing company-specific training. A new legal entity would be set up dedicated to the development of higher education at the tertiary level. This led to the birth of the Institute of Technology PETRONAS Sdn Bhd (ITPSB) in April 1995.

The then CEO of PERMATA Datuk Dr Rosti Saruwono was appointed the MD/CEO of ITPSB to spearhead the establishment of the university, and he would later serve as the university's first rector (later known as Vice Chancellor). *(see page 20)*

Mohamed Zohari believes that one critical factor that led to the setting up of ITPSB was that PETRONAS at the time was in transformation mode. "The top management was supportive of value creation as a basic management tool. Convincing them that the university would create value to PETRONAS and the country was made easy because they too were thinking about social responsibility. More importantly, the Prime Minister at the time was Tun Dr Mahathir Mohamad who was visionary in his thinking about the critical role of private universities. So it happened at the right time, with the right leaders in the right frame of mind."

UTP Vice Chancellor Datuk Ir Abdul Rahim Hashim, who was a member of the steering committee at the time, concurs about it being the right time for PETRONAS to start a university. "For us at PETRONAS, the government's plans fitted in well with how we were going to get people for our needs," says Abdul Rahim, who was running the PETRONAS Melaka refinery when the idea for the university was mooted.

"At that time, we were recruiting young graduates and sending them to the refinery in Kerteh where they would be trained. Some would be promoted to take over existing positions in Kerteh thereby releasing the more experienced staff for the Melaka refinery," he says, adding that besides operators and technicians, there was a need for engineers.

"The question then was where were we going to find such people? The market alone would not be able to provide us with all the engineers we needed, so we somehow had to grow our own timber. The timing was right and we were responding to a need," adds Abdul Rahim.

Opposite page
Lily pond in the Core Park

"Our aim was to develop UTP to be a leader in technology education. All its facilities are intended to inspire and encourage the users to strive hard to fulfill the vision set for the university. May the university always be a crucible of excellence, and a centre of creativity and innovation."

Mariam Rahimah Mukhtar

ITPSB Board Member, 2001-2005
Vice President, Education Division, PETRONAS, 2001-2005

Top right
UTP may have begun operations in humble surroundings, but the emphasis, from the start, was on providing a world class university education. Village 6 student accommodation, built in three months in 1996, is still standing today.

Right
Village 3

Humble beginnings

The first thing on the agenda for the company, ITPSB, was to be registered with the Ministry of Education, which would then allow the newly established Institute of Technology PETRONAS (ITP) to enrol its first batch of students. With no campus of its own, the institute had to use the facilities of its sister company, PERMATA, recalls Rosti, who was the CEO of both organisations for a year.

"Many of the staff in PERMATA and INSTEP helped with administrative matters. They included Kamaruddin Hassan and Repin Ibrahim (human resource), Sariah Sarijan (finance), Rahman Baharuddin (warden), and Rosli Mohamad, Meor Zamil, Sallehan Din and Abdul Kudus Yaakub. For academic matters, we pulled in Dr Adilah Abdul Hamid, a chemical engineer from PRSS who had been a lecturer at a local university," says Dr Rosti.

To kick-start the operations, ITP (which later became UTP) offered a Foundation Programme in Science, a pre-university course allowing students to continue into engineering and technology programmes at other universities. The first year focused on English and the basic sciences such as mathematics, physics and chemistry. The first group of ITP lecturers who were recruited included George Cheah (English), Dr Nasiman Sapari (Science and Environment), Dr Abdul Rashid Abd Aziz (Engineering/Physics), and Dr Afza Shafie (Mathematics).

Back then, and in the years immediately following the establishment of the institute, there were many who were eager to join ITP. Some left secure and established positions at other institutions of higher learning to join this fledgling institution – convinced that they could lend their expertise and experience, and grow with the organisation. That display of optimism and confidence is a recurring theme in the story of the university.

Besides the pioneer administrative and teaching team, crucial to ITP's formative years was the support from PETRONAS' management, among them, Mohamed Noordin. "With his contacts and insider knowledge of how the system worked, we got necessary approvals fairly quickly and had the first batch of students enrolled by July 1995," says Dr Rosti.

Initially there were 115 students but many were soon offered scholarships by other agencies to study abroad, and eventually only 65 remained – to claim the honour of being ITP's pioneer graduates.

To say that ITP's beginnings were humble is an understatement. "We had no classrooms, no labs, no hostels," says Dr Rosti. To address this, ITP had to rent science labs from nearby public universities, and converted a few rooms at the PERMATA Sports Complex into lecture theatres. The students had the luxury of staying at PERMATA's hostel, which was designed for executives and had their meals at the cafeteria.

"I joined UTP, which was then known as ITP, in January 1996 to serve a 12-year bond with PETRONAS. I didn't plan to join academia as I wanted to join the industry but this was an opportunity to be involved in starting a university, and you rarely get that opportunity. When I joined, there were only a handful of lecturers and I was one of the few engineering lecturers, so I taught most of the basic engineering subjects."

Professor Dr Abdul Rashid Abd Aziz
Deputy Vice Chancellor (Research & Innovation), UTP, 2009–2016

"When it was decided that PETRONAS would start a university, I was tasked with leading a committee to look into how we were going to embark on this. We visited many universities around the world, in the US, UK, Norway and Hong Kong. We were in Trondheim, Norway, sometime in March or April and we mistakenly thought it was already summer. We were unprepared for the weather and did not have any winter clothing. There we were, walking in the deep snow, looking for Asian food, and struggling away until we found a Thai restaurant. There were many such moments of fellowship in those early years."

Tan Sri Mohamed Noordin Hassan
Former Vice President,
Group Human Resource, PETRONAS

Twinning programmes

Although such creative measures addressed the issue of facilities, for ITP's proponents there was still one lingering matter – private institutions were not allowed to confer degrees. The Private Higher Educational Institutions Act had still not been passed, and it was uncertain how long it would take the government to resolve the issue. In the meantime, ITP had to find a solution for its students to obtain a recognised degree. This was when the idea of having twinning arrangements with foreign universities was explored, and ITP set about finding potential partners.

ITP focused on universities with reputable programmes relevant to the oil and gas industry such as petroleum engineering, mechanical engineering, electrical engineering, chemical engineering, geology, and geophysics to name a few.

It took a lot of confidence talking to established universities when ITP had no track record at all. "They wanted to know our curriculum, our teaching staff, our facilities, our standards," says Dr Rosti. The ITP team was led by Mohamed Noordin and later Mohamed Zohari, and members included Dr Rosti, Dr Ariffin, Dr Adilah and Mahadzir Saad who was Head of PETRONAS Property Management Services.

Success came when ITP signed a Memorandum of Understanding (MOU) with the University of Calgary in Canada, the University of Surrey in the UK and the University of Strathclyde, a Scottish public research university located in Glasgow, UK.

The management also relied on the goodwill and reputation of PETRONAS to convince these universities to take ITP seriously and establish working relationships. PETRONAS was already sponsoring students to many universities around the world, including in the US, UK, Australia and Canada.

When visiting the universities in the US, UK, Norway and Hong Kong, the team also sought to gain an insight into private higher education, from the range of courses offered to the areas of research to focus on, as well as seek their advice. "We knew that we wanted the (eventual) university to be different from public universities and we wanted to start on the right footing," recalls Mohamed Noordin.

“Some of my fondest memories of the early days include being the academic head and warden for the pioneer ITP students housed at the then PERMATA, as well as the migration to Tronoh and having to share the campus facilities with USM.”

Dr Adilah Abdul Hamid

Academic Head, 1996–1998 and Senior Manager, Academic Programme (Project Team), 1999–2000

"Since UTP is a private university, the challenge was to make the university different especially to the (prospective) graduates. The programmes offered should not only produce graduates who are excellent academically but also cater to the real world and real working scenarios. On reflection, I find it satisfying to see that the output has met with the initial objectives of the steering committee."

Dato' Dr Mohamed Ariffin Aton
Former CEO, PETRONAS Research and Scientific Services Sdn Bhd

Finding a home

At the same time, Dr Rosti and his team also knew that operating out of PERMATA and renting lab space from other universities was not feasible in the long-run, and plans were quickly set in motion to find ITP a place to call its own. Several potential permanent sites were explored and several locations were bandied about including one in Selandar, Melaka and another in Ulu Bertam, Kepala Batas.

The ITP team also visited most of the local universities to learn how campuses were built and managed. An attempt was also made to rent shop units to be converted into temporary classrooms, labs, offices, dining hall and other basic facilities.

Although there were a couple of promising sites on the cards, a sudden turn of events would settle the question of where ITP and eventually UTP would be located.

On 25 October 1995, during the tabling of the country's budget in Parliament, the then Finance Minister Datuk Seri Anwar Ibrahim announced that PETRONAS would be taking over Universiti Sains Malaysia's Perak branch campus in Tronoh. Negotiations ensued involving PETRONAS, USM and the Ministry of Education.

"USM was rationalising its operations and wanted to transfer its Engineering Faculty in Tronoh to Penang. The Tronoh campus was located on 202 hectares of former mining land. It was fully equipped and had many qualified academic staff. We saw this as an opportunity to get quick access to engineering laboratories and qualified staff, should USM wish to release them. And so it came to pass," says Dr Rosti.

As negotiations involving PETRONAS, USM, Ministry of Education and the Perak state government progressed, a decision was made to move ITP's operations from Bangi to the new site in Tronoh. A date was set for the move – 1 July 1996.

Tun Azizan Zainul Abidin, Chairman of PETRONAS and ITPSB Board, left, on site just before the official opening of the Academic Complex in 2003.

Opposite page
Aerial view of construction in progress. Inset: The dome of UTP's An-Nur mosque.

"UTP's Academic Complex embodies several principles – excellence in engineering, functionality, fit for purpose, an integrated learning approach, integration of knowledge from various disciplines, safety, and harmony with the environment. This is the culmination of years of planning and commitment by the Board, the management, academic and support staff, project staff, students, contractors, consultants and many more."

Datuk Ishak Imam Abas

ITPSB Board Member, 1995-2005
Senior Vice President, Finance, PETRONAS, 2000-2006

NEVER A DULL MOMENT

A mechanical engineer by training, Datuk Dr Rosti Saruwono was initially overwhelmed when he was appointed the MD/CEO of Institute of Technology PETRONAS Sdn Bhd to spearhead the establishment of Universiti Teknologi PETRONAS (UTP).

"I never had any experience of being a university lecturer, let alone being a Dean or Vice Chancellor. I didn't know how universities were run or how various academic systems with registrars, senates and chancellors were structured. But although I didn't have the experience of running a university, I had the experience of running a company," says Dr Rosti, who was at the time CEO of PETRONAS Management Training Sdn Bhd (PERMATA).

From the get-go, he knew that he had a challenging task on his hands. "There were too many things to be done in too short a time. We had to start from scratch. It was made clear to me that should I fail to deliver, I would be taken out of the project. And there were a few occasions when I was reminded of that. We were also often reminded that the university was part of PETRONAS, and as such whatever we do we cannot undermine the image of PETRONAS," he recalls.

But he also knew that help and guidance were available for the asking. "That is the culture at PETRONAS. There is that strong sense of common ownership and team spirit. All I needed to do was to listen, learn and improvise. There was also support from the PETRONAS Group in management matters such as human resources, finance, legal, corporate affairs, security and property management. So at every stage, we would discuss and bounce ideas," he says.

"There was never a dull moment in those early years," says Dr Rosti. "As we were one of the pioneer private universities, we faced several challenges in setting up operations. Many policies and systems were not in place. ITP, and later UTP, were registered with the Ministry of Education and were lumped with other private institutions including kindergartens, international schools and private schools. Every step of the way required approval.

"Getting timely approval was a nightmare. At one stage, we had to wait at 7.30am for an official to arrive at his office from the airport and secure his signature, failing which we would be operating without a valid licence!"

Dr Rosti, who retired as UTP Rector in 2005, describes his tenure as satisfying. Looking back, he reckons that his lack of experience in running an educational institution turned out to be a blessing in disguise. "I didn't have a fixed idea or perception of how a university should be. There was no single way of doing things. I could learn from as many sources as possible, from existing universities and other organisations, learn what works best, what pitfalls to avoid, and craft our own vision for the university."

For Dr Rosti, his experience as one of the pioneers of UTP and its founder rector remains one of the most enjoyable moments of his 28-year career in PETRONAS. "It was a huge task, and when I look at the university and its graduates today, I am happy that I was given the opportunity to play a part in its initial establishment."

The hard work and commitment of UTP's pioneer team has created a vital and vibrant education environment.

April '95
Setting up of Institute of Technology PETRONAS

July '95
First Academic session commenced in PERMATA, Bangi, Selangor

July '96
Relocation to the permanent campus in Bandar Seri Iskandar, Perak Darul Ridzuan

January '97
Invitation by the Minister of Education to set up UTP

1995-1997

1998-2000

July '98
Commencement of UTP Academic Master Plan Study, followed by the Physical Development Master Plan

December '98
Completion of UTP Academic Master Plan Study and Commencement of Physical Development Master Plan

1999
Accreditation from the National Accreditation Board for Chemical Engineering, Electrical and Electronic Engineering, Mechanical Engineering, Information Technology and Information Systems programmes

2000
Introduction of postgraduate degree programmes

August '01
- Proclamation of YABhg Mulia (Dr) Raja Tun Mohar Raja Badiozaman as Chancellor
- Proclamation of Tun Azizan Zainul Abidin as Pro Chancellor
- Inaugural Convocation Ceremony with 150 Graduates

September
Commencement of UTP Research, Development and Consultancy Master Plan

October
Accreditation from Board of Engineers, Malaysia for Chemical Engineering, Electrical & Electronic Engineering and Mechanical Engineering programmes

2001

2002

January
Commencement of Engineering and Mechanical Engineering programmes

Feb - March
- Recognition from Public Services Department for Chemical Engineering, Electrical & Electronic Engineering, Mechanical Engineering, Information Technology and Information Systems programmes
- Completion of UTP Research, Development and Consultancy Master Plan

February
Appointment of Academic Advisory Council Members

June
Official Opening of Academic Complex by Tan Sri Azizan Zainul Abidin, Chairman of PETRONAS and ITPSB Board

August
- Proclamation of Tan Sri (Dr) Mohd Hassan Marican as Pro Chancellor
- Third Convocation with 333 graduates

2003

August
Second Convocation Ceremony with 304 Graduates

October
Accreditation from Board of Engineers, Malaysia for Chemical Engineering, Electrical & Electronic Engineering

January
Commencement of MSc in Petroleum Engineering and MSc in Process Integration

April
Proclamation of Tun Dr Mahathir Mohamad as Chancellor of UTP

August
- Official Opening of UTP by Tun Abdullah Hj Ahmad Badawi, Prime Minister of Malaysia
- Fourth Convocation Ceremony with 464 Graduates

2004

2005

March
Establishment of Halliburton Training Research Centre at UTP

August
Fifth Convocation Ceremony with 563 graduates

September
Accreditation from IChemE (Institution of Chemical Engineers) UK for Chemical Engineering Programme

July
Official Opening of An-Nur Mosque by HRH The Sultan of Perak

August
Sixth Convocation Ceremony with 724 graduates

2006

2007

August
Seventh Convocation Ceremony with 848 graduates

September
The Chancellor Complex received Aga Khan Award for Architecture

MAJOR MILESTONES

2008-2010

2008
Eighth Convocation Ceremony with 1088 graduates

2009
Ninth Convocation Ceremony with 1139 graduates

July '10
Rated Tier 5 (Excellent) under the 2009 Rating System for Institutions of Higher Learning (SETARA)

October '10
• Proclamation of Dato' Shamsul Azhar Abbas as Pro Chancellor
• Tenth Convocation Ceremony with 1190 graduates

2011

April
• Recognition for Structured Student Industrial Internship Programme from Talent Corporation Malaysia Berhad (TalentCorp)
• Organisation structure and nomenclatures of UTP revised
• Establishment of the Faculty of Geosciences & Petroleum Engineering

October
• Eleventh Convocation Ceremony with 1470 graduates
• Formation of Research Advisory Council

2012

July
First Private University Accredited by Standards Malaysia for its Universal Testing Machine Laboratory

October
• Proclamation of Tan Sri Sidek Hassan as Pro Chancellor
• Twelfth Convocation Ceremony with 1267 graduates

November
• Rated Tier 5 (Excellent) under the 2011 Rating System for Institutions of Higher Learning (SETARA)
• Rated 5 Star under 2011 MyRA (Malaysian Research Assessment Instrument)

2013

January
Conferred with a Tier 5 (Excellent) for D-SETARA 2011 (Discipline-Based Rating System) in Engineering

October
Thirteenth Convocation Ceremony with 1147 graduates

December
Rated 3-star for Excellence in the Quacquarelli Symonds (QS) World University rating for 2013

2014

February
Ranked in the top 200 in the 2014 QS World University Ranking by subject for Chemical Engineering

May
The only private university in Malaysia ranked in the top 200 for the 2014 QS Asia University Rankings

September
• Ranked 335 for the Engineering and Technology Faculty under the 2014 QS World University Rankings

2015

May
Three subjects made it to QS World University Rankings by Subject: Electrical & Electronic Engineering, Mechanical Engineering and Computer Science and Information Systems

September
Improved the ranking from 335 to 288 in QS World University Ranking 2015 for Engineering & Technology Faculty

October
• Proclamation of Datuk Wan Zulkiflee Wan Ariffin as Pro Chancellor
• Fifteenth Convocation Ceremony with 1154 graduates

December
The only private university in Malaysia to be rated 6-star under MyRA

• The first private university in Malaysia to receive 4-star rating by QS
• Centre of Intelligent Signal and Imaging Research (CISIR) is recognised as a National HiCOE by Ministry of Education

October
Fourteenth Convocation Ceremony with 1278 graduates

2016

March
QS World University Ranking by Subject acknowledged Chemical Engineering and Mechanical Engineering subjects as top 150 and 200, respectively. Electrical & Electronics is at top 250 and Computer & Information Sciences at top 350.

June
Improved standing in the QS Asian University Rankings 2016, moving up to 127.

September
Debuted in the 2016/17 Quacquarelli Symonds (QS) World University Rankings, entering in the 601–650 band, the only private university to make it into the rankings.

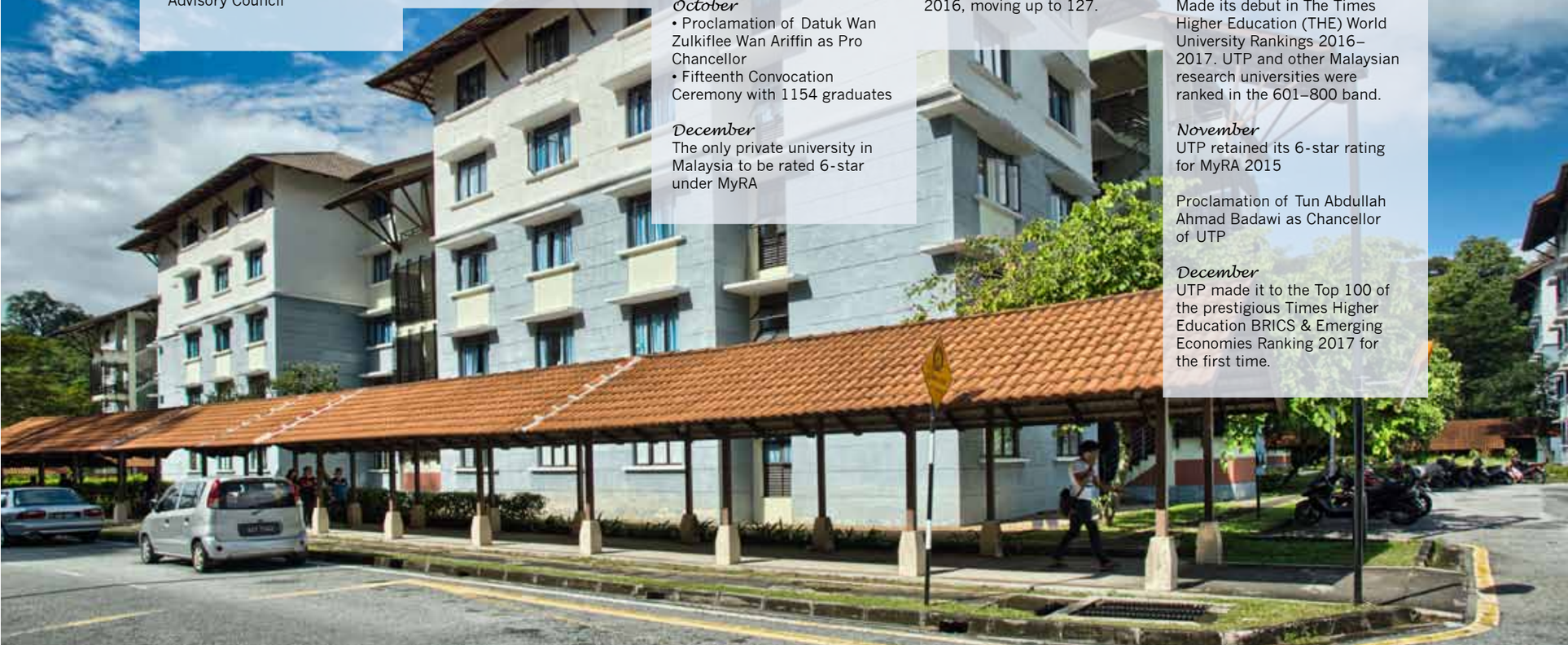
Made its first appearance in the QS Top 50 under 50 and was one of three Malaysian institutions ranked in the 91–100 band.

Made its debut in The Times Higher Education (THE) World University Rankings 2016–2017. UTP and other Malaysian research universities were ranked in the 601–800 band.

November
UTP retained its 6-star rating for MyRA 2015

Proclamation of Tun Abdullah Ahmad Badawi as Chancellor of UTP

December
UTP made it to the Top 100 of the prestigious Times Higher Education BRICS & Emerging Economies Ranking 2017 for the first time.



Chapter 2

DRILLING down

A year into its operations in Bangi, Universiti Teknologi PETRONAS (UTP), then known as the Institute of Technology PETRONAS (ITP), received word that a site had been identified for its permanent campus. The following months saw a flurry of activity that culminated in ITP moving to Tronoh, Perak, on 1 July 1996.

Six months later, the Private Higher Educational Institutions Act was passed and PETRONAS received a formal invitation to start the university. But there were still many unanswered questions, such as the size of the university, its facilities and the programmes it would offer.

The university's founders envisioned UTP as a leader in technology education and a centre for creativity and innovation. They set out ambitious goals, namely to produce well-rounded graduates with leadership qualities, provide superior learning experience in order to equip graduates with broad technology-related professional competencies as well as contribute to the economic and social advancement of the country. Other priorities include supporting PETRONAS' reputation as a global multinational of choice, contribute to the research and development of key technologies to provide PETRONAS with a competitive edge, provide rewarding careers for educators and researchers alike, and contribute to the emergence of a new generation of academic staff who see their primary roles as facilitators of learning rather than advocates of teaching.

It was, undoubtedly, a tall order for the pioneer team. But they rose to the challenge, and the success the university has achieved today is in no small measure the result of their foresight, hard work and commitment.

The details of the university's grand vision, its priorities, how it got off the ground, its organisation and the critical success factors of the early years are elaborated in this chapter.

Opposite page
The vision was established, the goals were set. The UTP team then began drilling down into the practical realities of creating an ideal teaching and learning ecosystem.

Right
The Shorea hemsleyana, a tropical hardwood, is one of four species endemic to the area.

THE JOURNEY FROM ITP TO UTP

"I offered to be seconded to UTP from USM. I saw it as an opportunity for me to do something for the second time because before that, I was involved in helping with the development of USM's School of Engineering in Perak. The opportunity to build a new campus, develop the curriculum, and moving physically from Penang to Tronoh was a great experience. With UTP, it was an opportunity to repeat some of that but in a better way. I was 36 at the time. Looking back, I guess what set us apart is that we were driven by a true sense of purpose, not a kiasu sense of purpose. We never said we want to be better than others but we had a vision and established the roadmap towards achieving that vision."

Professor Ir Dr Ahmad Fadzil Mohamad Hani

Deputy Vice Chancellor (Academic), UTP, 2011–2016

ITP's search for a permanent home culminated at the end of 1995. The government announced that ITP would take over Universiti Sains Malaysia's (USM) Perak branch campus in Tronoh, Perak. Early discussions focused on determining the terms of the purchase, and many issues had to be clarified such as staffing, acquisition of assets, facilities, course structure and curricula.

While negotiations were underway with USM, ITP was instructed to shift its operations from Bangi to Tronoh, and the date set for the move was 1 July 1996. But it transpired that USM would not be moving immediately as its new campus in Transkerian, Seberang Prai, had yet to be built, and it needed to continue using the Perak campus.

ITP however needed the facilities immediately since it already had students. Eventually, several compromises were agreed upon and these were spelled out in the final document of transfer that included among other things, that USM would continue to use the existing campus until it was ready to move and it would pay all its utility bills; ITP would be allowed to use the USM laboratories, classrooms, and sports facilities at no charge except for consumable items; USM would second one senior academic staff to ITP; and USM would allow its lecturers to teach ITP students at agreed-upon rates.

"Inevitably there were disagreements (between UTP and USM) over the use of common resources. But, by and large, we fostered a good working relationship among the staff of both organisations as well as among the students. There was a lot understanding, give and take and personal relationships infused into business arrangement."

Datuk Dr Rosti Saruwono
Founder Rector

Move to Tronoh

Before the big move in July, there remained the outstanding problem of where ITP would actually move into, since the newly acquired campus was still occupied. Pioneers at the time compared it with a situation of someone purchasing a house but being unable to move in because the previous owner and occupant had not moved out. But ITP didn't have the time to dwell on the issue – an immediate solution had to be found.

This fell on the shoulders of Mahadzir Saad, PETRONAS Hartabina's Head of Property Management Services who was part of the ITP and PETRONAS study team which visited various universities in the US and UK to learn about campus development. When it was decided that ITP would move to Perak, he had to ensure that the infrastructure and facilities were in place to receive the new intake of 240 students. "I asked for four months to get things ready and was given three months instead, so everything had to be fast-tracked," he says.

ITP needed hostels to accommodate students, offices for administration staff and labs for fundamental subjects such as English, Physics, Chemistry and Computer Science. What followed was a flurry of construction projects that were famously dubbed "three-month projects". It took ITP three months to build the temporary hostels and the office buildings to enable it to move its operations to Tronoh, another three months for the labs to be built and three months for the multipurpose hall and library.

The construction was carried out so speedily that the surrounding community was surprised that new buildings were sprouting up every three months.

Mahadzir concedes that it was a challenging period. “To ensure that construction would proceed smoothly, management had to be convinced that the contractors had to be paid every two weeks so that they had the necessary cash flow, and work would not be disrupted. Work was carried out around the clock in three shifts a day, and we had to install the facilities for the construction workers.”

The team opted for modular buildings, where the steel structures were built at the factory and assembled on site. “The buildings looked bland but it was a case of form following function,” says Mahadzir, a trained architect.

Critical to the successful completion of the facilities was also the financial wherewithal of PETRONAS, which spent RM12 million on these interim facilities. The local authority, Mahadzir says, was instrumental in ensuring that there were no delays, particularly in approvals. “In the end, it came right down to the wire. Before the students registered we were still bringing in beds to the hostel rooms, and grass was just being planted. So when the students came in, there was a collective sigh of relief,” he says.

"When PETRONAS moved from the Dayabumi Complex to the Twin Towers, I went to Dayabumi to see if there was any furniture that we could salvage for UTP. There were meeting room facilities, filing cabinets, computer tables, and chairs that we salvaged and trucked to UTP for the temporary campus."

Muhamad Jurimi
Former Registrar

Becoming a university

As ITP settled into its new home, the long-awaited Private Higher Educational Institutions Act was finally passed at the end of 1996. Everyone was anxiously waiting for the day when PETRONAS would be formally invited by the government to establish a university. That formal invitation took place on 10 January 1997 at a simple ceremony in the Dayabumi Complex, Kuala Lumpur.

Datuk Dr Rosti Saruwono was made Rector of the newly established university. Supporting him were the pioneer teaching team from Bangi comprising among others, Professor Dr Abdul Rashid Abd Aziz, Dr Adilah Abdul Hamid, Dr Nasiman Sapari and Dr Afza Shafie. This team was bolstered by the addition of Professor Ir Dr Ahmad Fadzil Mohamad Hani who was seconded from USM, Professor Dr Mohamed Ibrahim Abdul Mutalib, Associate Professor Dr Zainal Ambri Abdul Karim, and Muhammed Jurimi, who joined as the Registrar – all of whom played a role in shaping the university.

Muhamad Jurimi for instance, was tasked with formulating the university's acts and statutes, rules and regulations, and other documentation required for UTP's registration with the Ministry of Education. He was also responsible for drafting the university's constitution.

During the early years, a lot of time was invested in talking to various stakeholders in crafting the vision and mission of the university, which in turn would drive the strategies to define UTP.

Dr Rosti says that there were many unanswered questions about the long-term plans for the university. "What will be the size? What other programmes will it offer? Will it be just offering undergraduate courses, or will it offer post-grad courses? What about research? Will it offer courses relevant to PETRONAS only? What kind of facilities will it have? At one stage a key individual remarked, not without a tinge of sarcasm, that UTP is "a university of questions."

"We took the time to talk to various stakeholders – PETRONAS management, multinational companies, employers, students, professional bodies, other universities, research institutions, government agencies, even parents, before we formulated the university's vision, mission and long-term plans. An external consultant was engaged to undertake this task, supported by an internal team comprising staff from ITP and PETRONAS that included Mohd Zazali Salim, Idris Tahir and Dr Razali Hamzah," recalls Dr Rosti.

From the start, besides complementing the government's efforts in developing Malaysia as a regional centre for educational excellence, PETRONAS also aimed to produce home grown professionals and experts in petroleum related fields. The vision for UTP was to be a leader in technology education and a centre for creativity and innovation.

Then Chairman of PETRONAS and also Chairman of the UTP Board, the late Tun Azizan Zainal Abidin emphasised that a university is a timeless organisation. "He said that the university is there to serve as a source of knowledge, creativity and innovation, contributing to the betterment of society," says Dr Rosti. *(See A LASTING LEGACY on page 44)*

For Tan Sri Mohd Hassan Marican, the former President and CEO of PETRONAS, the vision for UTP was never about buildings and impressive infrastructure. "The late Tun Azizan and I were keen that UTP's graduates would not just develop excellence in the field of engineering but have a holistic education. We concentrated on content and quality of our educational service delivery," says Hassan, who was the first Chairman of the UTP Board and UTP Pro Chancellor from 2003–2010.

"After I completed my degree in Australia, I wanted to join PETRONAS. That was the reason why I did chemical engineering but when I came back in 1988 it was the recession and there were no jobs available, even with PETRONAS. I joined Universiti Teknologi Malaysia (UTM). I was a lecturer at the Faculty of Chemical Engineering and Natural Resources. I thought it would be temporary but as it turned out, I fell in love with academia. I served UTM for nine years including the time I went to the UK for my Masters and PhD. When I saw the UTP advert looking for lecturers, I thought it was a good opportunity for me to join an academic institution but at the same time gain exposure to the oil and gas sector. And joining PETRONAS was still a dream. So I joined UTP in March 1997."

Professor Dr Mohamed Ibrahim Abdul Mutalib

Deputy Vice Chancellor (Academic), UTP and founding Head, Chemical Engineering Department

Left
Dr Zainal Ambri, one of the pioneers

Against the grain

In the early years of its inception, UTP had few programmes on offer, namely two Foundation programmes (Engineering and Technology), which served as the feeder for its undergraduate programmes – Bachelor of Engineering in Electrical and Electronic Engineering, Bachelor of Engineering in Chemical Engineering, Bachelor of Engineering in Mechanical Engineering, Bachelor of Technology in Information Technology and Bachelor of Technology in Information Systems.

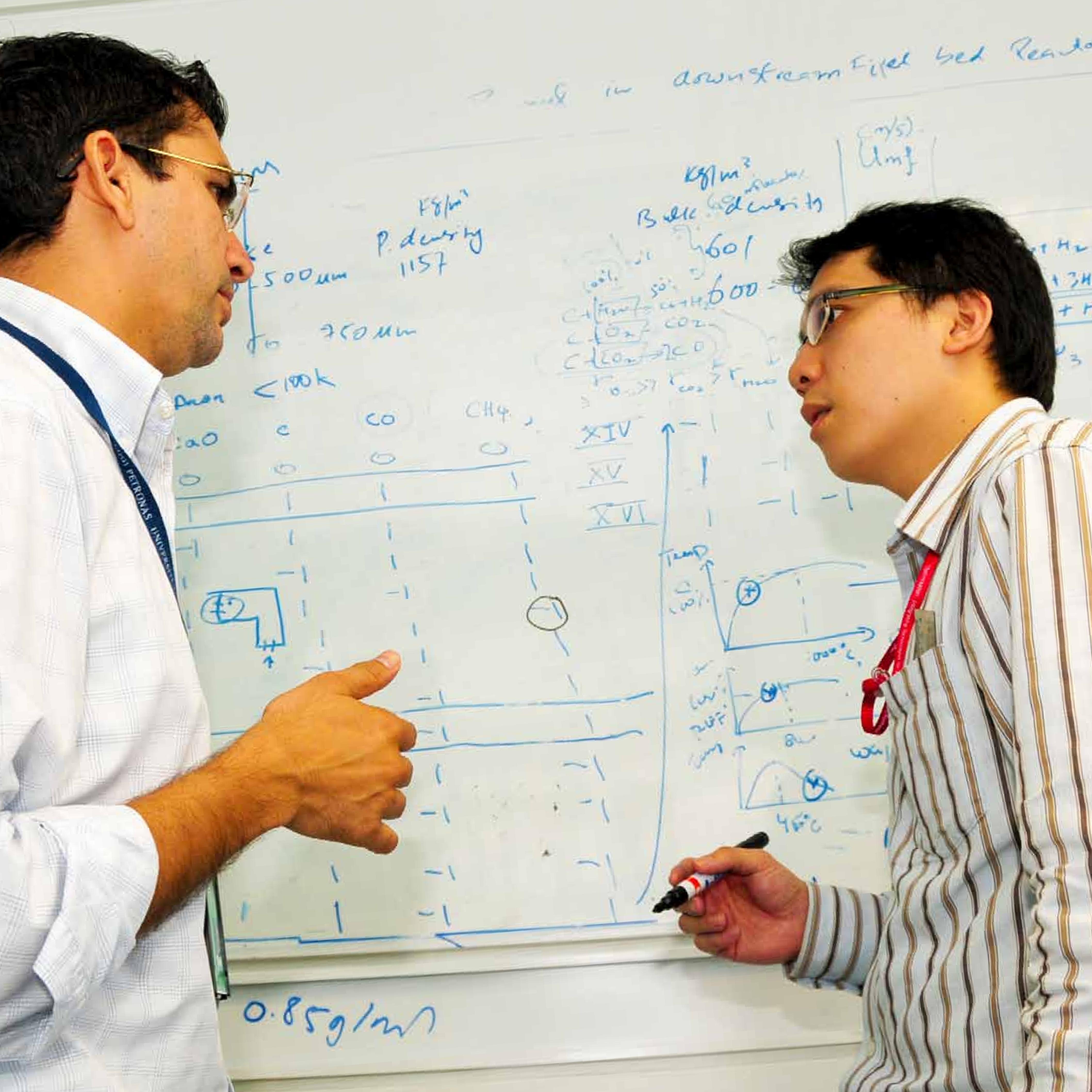
Although the university was established by PETRONAS, and the graduates produced were largely targeted for the oil and gas sector, UTP surprisingly did not offer a Bachelor in Petroleum Engineering. "We noted that because of the cyclical nature of the oil and gas industry, some petroleum engineering schools at other universities had to be closed down when demand for petroleum engineers fell. We felt that this programme could be developed later on," says Dr Rosti. "We learned that oil and gas companies train petroleum engineers from those with basic degrees in other disciplines such as Chemical Engineering, Mechanical and even Civil and Electrical Engineering. As such, our strategy was to provide broad-based technical disciplines with a heavy dose of business, management and social skills."

In the early years, the university did not have faculties or departments but instead had programmes. The rationale for this, explains Dr Fadzil, who was then Dean of Engineering Studies and later Director of Academic Studies, was to encourage the academic staff to be agile and to create cross-functional teams. The university didn't want to build silos which were a danger when organising the teaching staff into faculties. Here, everyone simply belonged to the university.

This made UTP unique, and when faculty members interacted with counterparts from other universities, it did raise eyebrows. "People would often ask 'Which faculty are you from?' and the response was 'I don't belong to a faculty, sometimes I teach mechanical engineering programmes and sometimes I teach civil engineering programmes.' We did not have professors or associate professors at the time. They were lecturers or senior lecturers. We were unique and certainly did not follow the norm," says Dr Fadzil.

Eventually, as the university grew and research became more important, UTP recognised that when applying for grants and funding, the first question asked was who were the professors leading the particular research. So in 2003, UTP adopted the more standard nomenclature of professors and associate professors which then led to the organisation of academic staff into departments and eventually faculties in 2010. It was also then that the designation of Rector was changed to Vice Chancellor.

Opposite page
UTP was determined that its students would have access to the best in technology. At the same time UTP would develop a capacity for creativity and innovation.


downstream
P. density
1157
Bulk density
CO
CH4
XIV
XV
XVI
Temp
0.85g/ml

"When we were developing the campus, the late Tun Azizan Zainul Abidin said that we had to take care of the natural heritage and strike a balance between the natural and built environments. Besides maintaining the natural terrain, we identified trees that were not allowed to be cut and imposed penalties on the contractor if the trees were removed."

Mahadzir Saad
Former Director,
UTP Project (campus development)

Initial hurdles

As a private university UTP had to adhere to the new laws regulating private universities and colleges, and that meant ensuring that the programmes obtained the necessary approvals from the Ministry of Education, accreditation by the Board of Engineers for engineering programmes and the National Accreditation Board for the technology programmes. Securing those approvals and accreditation were Dr Fadzil's responsibility.

"The campus had not been built. We had temporary buildings and were using USM's facilities. To get approval from the Board of Engineers we had to show that we had the capability and capacity to conduct engineering programmes. We couldn't say we were using USM's facilities but we had our own lecturers. We would not have secured accreditation that way.

"One of the things we did was to build a temporary lab for the accreditation exercise so we could show that we had the capability. It worked because when the accreditation committee came and saw the lab, they said it was fantastic. They said that if we could come up with this facility, though a temporary one, then we could do wonders in future," recalls Dr Fadzil.

Another challenge of the early years was that many of UTP's pioneer staff had little or no experience in developing a university. Many had just obtained PhDs and although a few of the teaching staff were from other universities, they had not been involved in building a university either.

Establishing internal processes and designing the organisational structure were some of the hurdles that had to be overcome. Fortunately, there was a lot of support from the PETRONAS Group in management matters, be it finance, legal, corporate affairs or property management.

Marketing UTP to prospective students and their parents was another challenge. Top students were after all spoilt for choice between local and foreign universities. There was a fair amount of effort involved in convincing them that UTP would provide a different quality of education.

On the student sponsorship front, at the time only three agencies (PETRONAS, the Public Services Department and MARA) offered financial assistance, but over the years this grew to include various private and public sector organisations such as Shell, Sime Darby, Maybank and Sarawak Energy Bhd to name a few. In the early years also, some 30% of the students were sponsored by PETRONAS. Today, that has dropped to below 10%. In addition, half of the students enrolled in UTP are self-financed – a testament to how far the university has come in attracting non-sponsored students.

In the beginning, many of the efforts to market the university were done in-house. Acting Senior Manager, Corporate Services Shamsina Shaharun who joined UTP at the end of 1997 as a junior executive recalls that the first prospectus and brochure were made in-house. "We didn't have a graphic designer or writer. We took photos of the temporary campus and basically made do with what we had."

That tenacity and ability to manage in the face of challenges is something that many of the pioneer teaching and management staff share. They recall working into the wee hours to meet deadlines and sacrifices were made to ensure that the university would live up to its vision and mission. More importantly, they all speak of the camaraderie and teamwork, and the sharing of a belief that the university would one day be a force to be reckoned with.

"Everyone was very gung-ho in the early years, and gave their all to the work. There were times when I was sleeping only about one or two hours a day but that was not unusual. Everyone was ready to work, there was no need to sleep!"

Shamsina Shaharun
Acting Senior Manager, Corporate Services

Determination, tenacity and teamwork kept the pioneer team on track to success.

"Back then, this area was barren and isolated. The nearest petrol station was in Pusing, which is 15km from UTP – so we would fill petrol into a Coke bottle from a nearby grocery shop. There was hardly any public transport then. The bus would come every three hours."

Dr Izzatdin Abdul Aziz

Deputy Head, Computer & Information Services Department and UTP undergraduate, 1998–2001

Tun Azizan at the third convocation in 2003.

From strength to strength

To support its vision, the university knew that it had to strengthen its academic offering, and that meant harnessing its talents. To this end, UTP started the Trainee Lecturer Scheme in September 1999, aimed at expediting the recruitment of qualified staff to meet the academic manpower requirements and to ensure availability of competent and qualified teaching staff especially at the postgraduate level. To date, 149 have benefitted from the trainee lecturer scheme and of these, 94 are now serving the university. Since the Staff Development Programme was initiated in November 1999, UTP has sent 165 staff to pursue postdoctorate degrees and of these, 113 obtained their PhDs.

From a handful of courses, UTP's academic programmes have developed to include Bachelor of Engineering in Petroleum Engineering, introduced in 2007 as well as postgraduate degrees, which were introduced in 2000. These include Process Integration, Petroleum Engineering, and Petroleum Geoscience. Today, the university's repertoire of academic programmes stands at 42, from foundation to postgraduate courses.

The university has three main faculties – Faculty of Engineering, Faculty of Geosciences and Petroleum Engineering, and Faculty of Science and Information Technology. The Department of Management and Humanities, meanwhile, provides courses that aim to produce well-rounded graduates possessing the latest competencies in Engineering, Science and Technology, as well as strong leadership, good behavioural and communication skills, analytical thinking ability, and managerial, business and social competencies.

Since the inaugural convocation in 2001 where all 150 of its graduates were employed within nine months after graduation, UTP graduates have maintained a high degree of employability. Today, 95% of its graduates are employed within six months of graduation.

UTP today doesn't just educate Malaysians but boasts students from some 60 countries who make up 16% of its student population of more than 8,700 (undergraduate, postgraduate and students pursuing the Foundation Programme).

In ensuring that its academic programmes conform to international standards and meet the expectations of relevant industries, the university has taken important strategic development and quality assurance measures by establishing the International Panel of External Examiners in 1999, Academic Advisory Council in 2003, and Industry Advisory Panel in 2007.

A conscious effort to attract industry participation has also been successful, and UTP today has more than 600 companies offering internship placements. These include PETRONAS, Shell, ExxonMobil, Schlumberger, Halliburton, Technip, BASF, GE Oil & Gas, and Hitachi Ltd, to name a few. The university's Student Industrial Internship Programme has also been recognised by Talent Corp as the best structured internship programme offered by educational institutions in Malaysia. (Talent Corp was set up under the Prime Minister's Department to formulate and facilitate initiatives to address the issue and availability of talent in line with the country's economic transformation.)

From its establishment, the proponents of the university and its pioneers realised that a university is a dynamic organisation – requiring time, resources and constant nurturing to build its expertise and reputation. The university's pioneers began with the end in mind, and in the process realised that the end was not stationary, the goalposts would constantly change as the world and the education sector evolved and grew.

As such, milestones had to be set. But in those initial years, the most that could be done was provide the basic infrastructure and environment for the university to grow and keep innovating. As the years passed, thanks to the dedication and commitment of the team at UTP, the university did just that.

UNIVERSITI TEKNOLOGI PETRONAS

Tun Azizan Zainul Abidin was very much involved in the design of UTP's logo and the UTP anthem.

LOGO RATIONALE

Relates to the concept of renaissance, birth and nurturing of the mind for national advancement of the highest order.

Simulates the bloom of a floral bud while injecting a graphic outline of the PETRONAS Twin Towers.

Reflects the beginning of a journey towards new standards in higher education.

Gold to denote light and deep pastel blue to signify peace and tranquility.

UNIVERSITY SONG

Luasnya samudera dalamnya bumi
Mendasari ilmu ke akar umbi
Di dunia tanpa sempadan
Kami berazam membina harapan

Berpegang kepada nilai yang murni
Kemakmuran insan misi kami
Hasil dituai benih disemai
Laba dinikmati beramai-ramai

Universiti Teknologi PETRONAS
Setiap warganya cerdas dan tangkas
Berilmu, beriman, berpandangan jauh
Dibidang teknologi berdiri teguh
Bersama ilmu, yakin dan jati diri

Kami bertekad mencurah bakti
Untuk dunia, untuk manusia
Matlamat kami, sejahtera semua

Song : Manan Ngah
Lyrics : Habsah Hassan

ACADEMIC MASTER PLAN

About a year into the establishment of UTP, a budget was secured to conduct an Academic Master Plan study. Proposals were invited from a few consultants and eventually the job went to Arthur D. Little (ADL), an international management consulting firm. A team was formed comprising consultants from ADL and UTP staff, guided by a steering committee at PETRONAS chaired by Ir Mohamed Zohari Shaharun, the then PETRONAS Vice President Technology Resource Management.

The team's mission was to consider, develop and recommend the contents of the academic master plan, and where necessary, provide input to the physical campus development. UTP's outcome-based education was a first for Malaysia, says Mohamed Zohari.

The study, which commenced in July 1998, was divided into three main phases – vision, strategies and implementation plan. The vision phase involved assessing stakeholder needs, reviewing best practices and developing shared vision. The second phase included assessing barriers and opportunities, developing the academic brief, defining management strategies and assessing financial and operational feasibility. The implementation plan encompassed defining prioritised development plans, determining development organisation and engaging partners. It was a period that involved intense meetings, discussions and travel.

The initial phase involved talking to a multitude of stakeholders to glean their expectations of a "quality" university and of "quality" graduates. There were meetings with employers, government officials from the Ministry of Education, Ministry of Science and Technology, SIRIM, Ministry of Human Resources, Ministry of International Trade and Industry, parents, students, university professors and administrators, professional bodies, and many more.

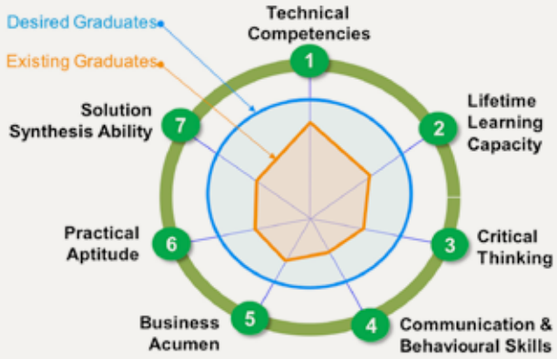
As the study progressed, the team was surprised to discover that there was no standard way that universities were structured or organised. "Even in Malaysia, one word meant different things to different universities, and the same things were described differently by different universities. For instance, there were chancellors, pro-chancellors, presidents, vice chancellors, rectors, provost and pro-vice chancellors. There were schools, faculties, colleges, departments, institutes and centres. There were terms and semesters and there were grade point averages on a scale of 1 to 4 and 1 to 7," explains the founder rector Datuk Dr Rosti Saruwono.

One advantage of starting a university from scratch was that it allowed UTP to be creative and innovative in designing the curricula, the governance and organisation structures, the work processes, the academic facilities, the student services and other functions.

What was agreed on was quality – all the stakeholders wanted quality facilities, quality faculty members, quality students and quality research. One of the most significant results of the study, which would have an impact on the development and progress of UTP, was the definition of "quality" graduates that UTP sought to produce.

Underpinned by its vision to be a leader in technology education and a centre for creativity and innovation, UTP decided that its graduates would be defined by outcome-based education attributes which included technical competence, lifetime learning capacity, critical thinking, communication and behavioural skills, business acumen, practical aptitude, and problem solving skill.

7 Attributes of Well-Rounded Graduates



To produce these desired graduates, the curricula, method of teaching and learning, the design of academic facilities and student services, linkages with industry and academic and business processes needed careful consideration. Selecting prospective students and faculty members was also crucial.

For instance, the student selection process would include interviews and assessment on personality, aptitude and other desired qualities. The then Registrar Muhamad Jurimi, who had been with PETRONAS Group Human Resources and was a core recruiter for the national oil corporation, says prospective students were assessed for analytical skills, imagination and ability to cope with stress and reality.

Prospective faculty members also came under intense scrutiny. Professor Ir Dr Ahmad Fadzil Mohamad Hani, then Director of Academic Studies, was involved in recruiting the teaching staff.

"We were looking for people who wanted to contribute to the university and its development, we wanted people who did not think of themselves alone, and who would be able to work in teams. We looked at the way they talked and the way they engaged with us. There was even role-play where we challenged them in various situations to see their reactions. It gave us a good idea of their level of empathy, and temperament.

"We also had structured interviews to gauge their ability in problem analysis and how they would handle leading the organisation. We wanted to get the right people on board," he says, conceding that although many applied for positions at the university, the success rate was less than 20%. "We interviewed many people because we were unsure if candidates would take up the offer but actually very few turned us down," he adds.

In December 1998, having formulated recommendations to the steering committee, the study team eventually submitted these to the university's board for approval.

Besides the emphasis on technical content, the team recommended that the curricula include a high percentage of non-technical subjects such as business, accounting, management, social science, communication and languages. Co-curricular subjects such as sports, music and culture and arts would also be an integral part of the curricula. Another significant point was the inclusion of compulsory eight-month (now seven months) industrial training for all undergraduates before the students were allowed to graduate.

This was a first for Malaysian engineering programmes. The extended period for industrial training was designed to ensure that such training would be meaningful and beneficial to both the undergraduates and host companies.

It was also recommended that UTP seek and forge a broad range of linkages and partnerships with many parties including industry, other universities, and research centres to achieve a unique balance between theoretical, applied and practical elements within an integrated curriculum.

Morphology of concept

PHYSICAL MASTER PLAN

With the academic master plan completed, UTP set about developing the physical master plan for its new campus in Perak. At this stage it was found necessary to acquire an additional 200 hectares of adjacent land from the state, apart from the 200 hectares already acquired from USM.

This was a piece of virgin land with many trees that were part of the original forest. There were trees worth preserving and the plan was to build around them. The whole 400 hectare site is characterised by steep hills and lakes formed by flooded disused tin mines.

For the campus design, the team drew inspiration from the attribute diagram in the academic master plan which uses a circle to describe the well-rounded graduates that UTP sought to produce. Arrows radiating from the centre represented the seven attributes that UTP graduates would possess. The site identified to be the nucleus of the UTP development is located in the valley with five saddles from the surrounding hills creating a star layout. Such a layout allowed the university to first establish the engineering programme and common facilities along the east-west axis and then expand along the other axes as UTP evolved.

In addition, the star is a symbol of quality and excellence – representing UTP's quest to become a world-class university.

Great care was taken to ensure that the design of the campus embodied the essence of the academic concept. Facilities were planned to provide a beneficial learning environment that included comfortable accommodation, functional labs, and comprehensive support facilities such as resource centre, sports and recreational facilities, mosque, cafeteria, banking and postal services.

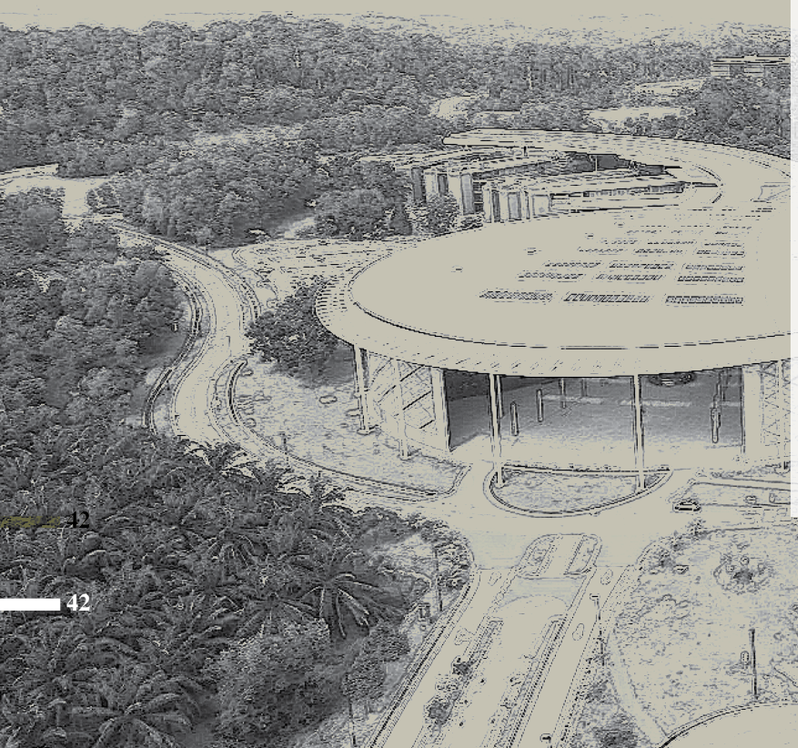
The layout of the campus was designed to encourage sharing of facilities and enhance the interaction among students and staff from the different academic programmes. The academic blocks were built based on the modular concept, which optimises the structural design, provision of services and spatial needs. The placement of the academic blocks and lab facilities was not random – its emphasis was integration of the facilities and encouraging interaction.

The priorities highlighted in the academic master plan dictated the manner in which the facilities at the Academic Complex were developed. For instance, the earliest philosophy that UTP adopted was that it should not be traditional in its approach – engineering education would not be a matter of chalk and talk but experiential and hands-on. This meant that a lot of labs were required.

The university's architecture was also to be timeless and inspiring, respecting the surroundings and not overwhelming or intruding upon it. The use of concrete and grass screed for the service road would allow the landscape to flow through the Academic Complex. The design also considered the influence of climate on the architecture. The complex is divided into several blocks with passages in the middle that allow maximum airflow. The canopy has sufficient clearance to allow wind and view but at the same time provide ample shade.

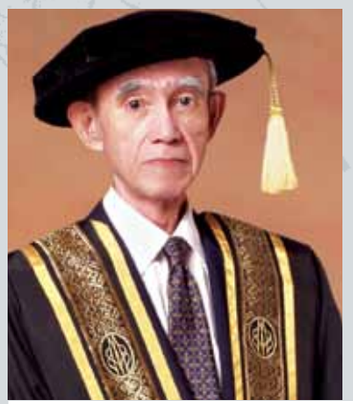
Where possible the buildings made use of cantilevered passive shading devices attached to the roof edges to keep the buildings cool. A combination of clear and opaque glass panels within the buildings help reduce solar gain.

The pinnacle of UTP's campus is undoubtedly the Chancellor Complex. Designed by Foster + Partners with GDP Architects, its construction was completed in 2004. Envisaged as the signature building of the campus, the steel and glass structure housing the chancellor hall, resource centre and the administration offices received the prestigious Aga Khan Award for Architecture in 2007.



42

A LASTING LEGACY



> “Given what’s been happening in the corporate world today, I would like to emphasise the importance of honesty and integrity. For example, I was once asked if given a choice between two assistants, someone smart or someone less so but one with considerable integrity and honesty, then I would choose the latter for my peace of mind.”
>
> **YAB Mulia Dr Raja Tun Mohar Raja Badiozaman**
> *Chancellor, UTP, 2001–2003*

The PETRONAS Chairman during the birth of UTP, the late Tun Azizan Zainul Abidin, left an indelible impact on UTP, with his vision for the university and its physical expression. UTP stalwarts, from the founder rector Datuk Dr Rosti Saruwono to the pioneer teaching staff and management team use the word “visionary” time and again to describe Azizan.

Supportive of the development of the university and recognising its importance not just to PETRONAS and the oil and gas sector but also to nation and knowledge building, Azizan stressed the importance of UTP remaining timeless and relevant. “He believed that the most lasting legacy that PETRONAS could leave behind is education. When all the physical resources have been depleted, it is knowledge, creativity and the resourcefulness of the people which will ensure the sustainability of the country,” says Dr Rosti.

As much as Azizan wished for the university to inspire, those who interacted with him attest to his humility, and that attribute had a bearing on UTP’s development. Former Deputy Vice Chancellor (Student Affairs & Alumni) Mohamed Noor Rosli Baharom recalls that when the university was first established, not many people from the surrounding towns of Bota or Parit knew about it. “He said that we should not brag about the university or its achievements. If we succeed, then that success will speak for the university. That humility impressed me.”

On another occasion, when the UTP mosque was on the drawing board, Mohamed Noor remembers Azizan asking about the capacity for the Perak state mosque in Ipoh, and when he mentioned the estimated capacity, Azizan stressed that the proposed UTP mosque should not be larger than the state mosque. “These are the lessons that he left behind, that the sense of humility must always be there.”

Acting Senior Manager for Corporate Services Shamsina Shaharun, who was responsible for the preparations of the university’s inaugural convocation in 2001, remembers how meticulous Azizan was in the selection of the required paraphernalia such as the robes and university mace. “He said that the robes should not look too flashy or overwhelming, that we should be able to see the person and not just a moving robe.”

It is generally acknowledged that UTP would not boast of its current campus had it not been for Azizan’s vision and support. He felt that not only should its architecture embody a timeless quality, but the university should also inspire students, the academic and management staff, visitors and the surrounding community.

Those involved in campus development recall him looking through all the plans and details, as well as offering his own input, in particular for the university design to incorporate traditional features and materials such as timber finishes and traditional songket motifs (as in the Chancellor Hall). The choice of pebble wash for pathways and walkways was also his suggestion.

“He could have chosen more expensive materials but he said that when people walk on these pathways, it should be a reminder of the kampung or the estate and laterite roads of one’s origins. The academic buildings are also grey because it is the colour of the earth, another reminder of where one comes from, and that the vibrancy and colour should come from the students and staff,” recalls Mohamed Noor.

Many of the pioneers share a similar sentiment when remembering Azizan – that the university owes him a great debt of gratitude. So it was with great sadness that the former Chairman of PETRONAS passed away just before the official opening of UTP in 2004.

Tan Sri Mohd Hassan helps Tun Azizan with his robe while Datuk Dr Rosti (far right) looks on. This was at the third convocation in 2003 – the last time Tun Azizan would wear the UTP robe.

"WE HAD A DREAM"

"Our licence to operate a private university may have come on 10 January 1997 but long before that, work had already begun in earnest for the establishment of a premier university that had a strong engineering focus," says former PETRONAS President and CEO Tan Sri Mohd Hassan Marican.

It was a powerful idea that required energy, strategic thinking and studying the workings of the world's best engineering schools. "We didn't rush into anything. Rather, we built on existing knowledge and experience," he explains. Education, he adds, was seen as crucial to the business of the national oil corporation. "We believed back then that we had to build human capacity and give people an opportunity and a chance to improve themselves. We did not want to give money for money's sake. Instead, we saw education as a long lasting investment. After all, an educated person would have greater opportunity to contribute to the nation.

"Education has always been one of PETRONAS's core concerns. We did not call it CSR (Corporate Social Responsibility) back then. For us, it was more than that. It was the cornerstone of nation building. I have always maintained that PETRONAS is not a company but a national institution that cuts across colour, creed and everything else. We therefore invested substantially in education."

When private universities were being established by government-linked corporations such as Tenaga Nasional Bhd (Universiti Tenaga Nasional) and Telekom Malaysia (Multimedia University), PETRONAS was also expected to do the same. "However, we wanted to do things slowly and to take carefully considered steps," he says. "We wanted to establish a learning hub with adequate funding built in. We wanted our graduates to be more than engineers. They had to have a wider, more rounded perspective.

"We began developing a master plan. We called in consultants Arthur D. Little to help us realise our vision for a 'best in its class' university. The late Tun Azizan (Zainul Abidin) and I were keen that UTP's graduates would not just develop excellence in the field of engineering but have a holistic education. That is why in our school of engineering we encouraged them to do electives in Business, Music and the Humanities. UTP was never about buildings and impressive infrastructure. We concentrated on content and quality of our educational service delivery."

There were challenges nonetheless, such as keeping English as the medium of instruction, retaining the ethnic mix to reflect Malaysia's own racial diversity with a 20% foreign student presence, resisting expanding the student intake numbers from 6,000 to 20,000, and keeping students funded during the 1997/98 economic crisis.

Looking back, he says UTP's establishment was a unique initiative that he and Azizan took from infancy to maturity. "We were there to watch UTP take its first tentative steps and then see it make great strides forward in various fields of engineering research, technology and enterprise," says Hassan.

"Our dream was to integrate all the different centres of learning under PETRONAS as part of the university and benefit from the synergies generated. PERMATA was to house the School of Management for postgraduate studies. We were looking to partner the prestigious INSEAD. When we built KLCC, we invited the Harvard Medical College to have a satellite campus here. Then, with the building of the Prince Court Hospital, we went on a study visit to the Medical University of Vienna, which has produced three Nobel Prize winners."

Partnering with the best, whether in industry or with top-notch learning facilities around the world has, says Hassan, helped UTP leap ahead in both the quality of faculty and the exposure of students to the brightest and the best.

Top
Tan Sri Mohd Hassan at the official opening of the An-Nur Mosque in 2006 with the then Vice Chancellor, Datuk Dr Zainal Abidin Kasim.

Left
At the installation of the last dome to the An-Nur Mosque in 2005.

Chapter 3

Breaking through to NEW POSSIBILITIES

Driven by its vision to become a leader in technology education and a centre for creativity and innovation, Universiti Teknologi PETRONAS (UTP) has always placed strong emphasis on research. However, in the first few years the priority was on developing the campus and the academic programmes. The focus was very much on teaching and learning. It was only after physical development was completed and the academic programmes put in place that UTP began to concentrate on research in earnest.

As was the case for the academic programmes, UTP embarked on its research journey with a Research and Development (R&D) master plan study, which was undertaken in 2002, followed by a Transformation Plan in 2009. The latter refocused UTP's research goals and set it on course to become a world-class research university.

In a short span of time, the university has undertaken extensive research activities in collaboration with PETRONAS and other institutions and industries locally and abroad focusing on a few key areas pertinent to the oil and gas sector, as well as biomedicine and automotive to name a few. The university has participated in various local and global exhibitions, and its researchers have won various medals and awards for their projects.

In recognition of its research, development and commercialisation efforts, in 2015 UTP was awarded a six-star rating by the Malaysian Research Assessment Instrument (MyRA) – the first private and a non-research university in the country to receive this accolade. It was also the first time that the Ministry of Higher Education awarded such a rating to universities.

The following pages detail how UTP approached the research agenda, the challenges it faced along the way and the milestones it has achieved.

BECOMING A RESEARCH UNIVERSITY

Research and development (R&D) is undoubtedly one of the core drivers of a university. Besides creating new knowledge and products, it is also the hallmark of progress, and a measure of prestige. UTP did not embark on R&D merely for the sake of the latter, but more crucially to benefit the country and mankind.

Datuk Dr Zainal Abidin Kasim, who was UTP Vice Chancellor from 2005–2012, says research is about contributing to society, coming up with new products and processes, and new technology for the country to become a knowledge-based society and a high-income nation.

But in the early years, the focus was understandably very much on the academic programmes. Professor Dr Abdul Rashid Abd Aziz who joined UTP (then known as ITP) in 1996 wanted to set the research agenda from the very beginning. "But the university was not ready at the time. We were still putting the infrastructure in place and just developing the curriculum. Back then, there were only about 100–200 undergraduates, so we were not ready for research."

The university took the first step towards research in 1999 when it set up the Research Enterprise Office, tasked with managing all matters connected to research, consultancy and innovation for UTP.

"In 2002, I got my first big break when I secured a large multi-institutional project from the Ministry of Science, Technology and Environment under the Intensified Research in Prioritised Areas top-down grant scheme. At the time, UTP was in its infancy where research was concerned, so it was a struggle. There was no framework for supporting research and many processes and procedures were developed ad hoc. I made it my mission during my tenure as the DVC of Research to create a fertile environment and an exciting place for researchers. This has helped us in a way to reach what we have achieved so far."

Professor Dr Abdul Rashid Abd Aziz

Deputy Vice Chancellor (Research & Innovation), UTP, 2009–2016 and Head of Centre for Automotive Research & Electric Mobility

A carefully crafted masterplan saw to the creation of a faculty and student community that was engineered to succeed.

"The Transformation Plan was the greatest thing we conceptualised and it worked. We crafted it, and it was successful because we knew what we wanted. It was an exciting time. Together, we came up with 150 initiatives over domains of leadership, research competency, culture and performance, which were the four areas of change management required to transform ourselves."

Professor Ir Dr Ahmad Fadzil Mohamad Hani

Deputy Vice Chancellor (Research & Innovation), UTP

Setting priorities

In 2002, with academic programmes on a firm footing, the management decided that it was timely for UTP to embark on its research agenda. Management consulting firm Arthur D. Little (ADL), which was responsible for UTP's academic master plan in 1998, was commissioned to develop the R&D master plan in collaboration with PETRONAS, the oil and gas industry and the academic team.

Deputy Vice Chancellor (Academic) Professor Dr Mohamed Ibrahim Abdul Mutalib, who was at the time Director of Research and Consultancy, says one of the priorities was to place UTP quickly in terms of research. "To do this, you cannot do everything or conduct research in all areas. There had to be areas of focus, which we called technology platforms."

In the beginning, there were five such platforms very much biased towards the oil and gas industry, including Enhanced Oil Recovery, Deepwater Technology, Carbon Dioxide Management as well as what were deemed futuristic areas such as Nanotechnology and Green Technology.

Even with these technology platforms identified, there were limitations. For instance, UTP didn't have the necessary facilities and had to collaborate with others outside the university in order to carry out analyses. The university also lacked the framework, namely in terms of the processes and governance, to conduct research.

The university realised that it lacked the capability and capacity to undertake research. Between 2002 and 2006, only some 10–15% of the academic staff were undertaking research, recalls Dr Abdul Rashid, adding, "you could count on your fingers the number of people who received grants." To address this, UTP needed to develop its academic staff and grow its pool of postgraduate students – a task easier said than done.

Professor Ir Dr Ahmad Fadzil Mohamad Hani, who was Director of Postgraduate Studies from 2003 to 2006, says that although there were graduate assistance incentives in place, there were not many takers.

Unable to grow its postgraduate numbers from the local pool of students, UTP decided to venture abroad, in particular to Pakistan. Dr Ahmad Fadzil went to universities in Lahore, Karachi and Islamabad to interview masters and doctorate students, and was successful in enticing many to further their studies and research at UTP. "We interviewed and selected the top students. Later on, as more people got to know us they began applying to do their postgraduate studies here," he says. Today there are about 1,500 students pursuing postgraduate programmes at UTP.

"Having that pool of postgraduate students was critical in order to grow the research because when I look at the enablers, it's not just about capability but also capacity."

"Research in the early years was not really conducive because we didn't have the facilities, we had to work with outside parties to do analysis and we were also struggling with the processes and governance. One of the things that felt very good was that we worked very closely and were able to resolve a lot of things in good faith and that helped to ease the pain."

Professor Dr Mohamed Ibrahim Abdul Mutalib
Deputy Vice Chancellor (Academic), UTP

World-class research capability

"We started to plan the transformation project in terms of scope, organisational structure, resources and schedule. The scope included a detailed action plan, how to become a world class research university, to revisit the mission oriented research fields in terms of test facilities, space and manpower, to think about the future R&D organisation within UTP, and change management. Reading about the development of UTP today – growth of research and centres of excellence – points to the huge success of the transformation journey."

Professor Ing Klaus Riedle
Former member,
UTP Academic Advisory Council

A review of the R&D master plan was conducted in 2006, revealing some gaps in UTP's research journey. Dr Zainal says the review revealed that some of the projects had been done merely for the sake of doing research. "Since it was the early stage, there was not much collaboration with industry or other research centres, and we found that facilities were minimal. The challenge then was how to make research relevant to industry. There was also the question of research culture – the writing of research proposals, literature review and research performance which needed improvement."

It was decided that a transformation – on various fronts – was required. The university needed to refocus and ensure that all research was aligned with PETRONAS and the country's aspirations. The Transformation Plan was carried out in 2009 and completed in 2010. By then the university boasted more than 200 academic staff and it was felt that UTP had the critical mass required for research activities to flourish.

Dr Mohamed Ibrahim, who had been involved with the R&D master plan, was tasked with leading the Transformation Plan together with the Registrar, Solihuddin Ahmad Nasarudin. Assisting in the development of the plan was Professor Ing Klaus Riedle, one of the international members of the UTP Academic Advisory Council at the time and the former President of Fossil Power Generation at Siemens AG in Germany.

The issues addressed included facilities, resources, leadership required for research, skills needed, research culture, and research performance competencies, just to name a few. The goal was to transform UTP into a research-intensive university, aiming for world-class research capability. As part of this journey, one of UTP's major goals was achieving Malaysian Research University status by 2013.

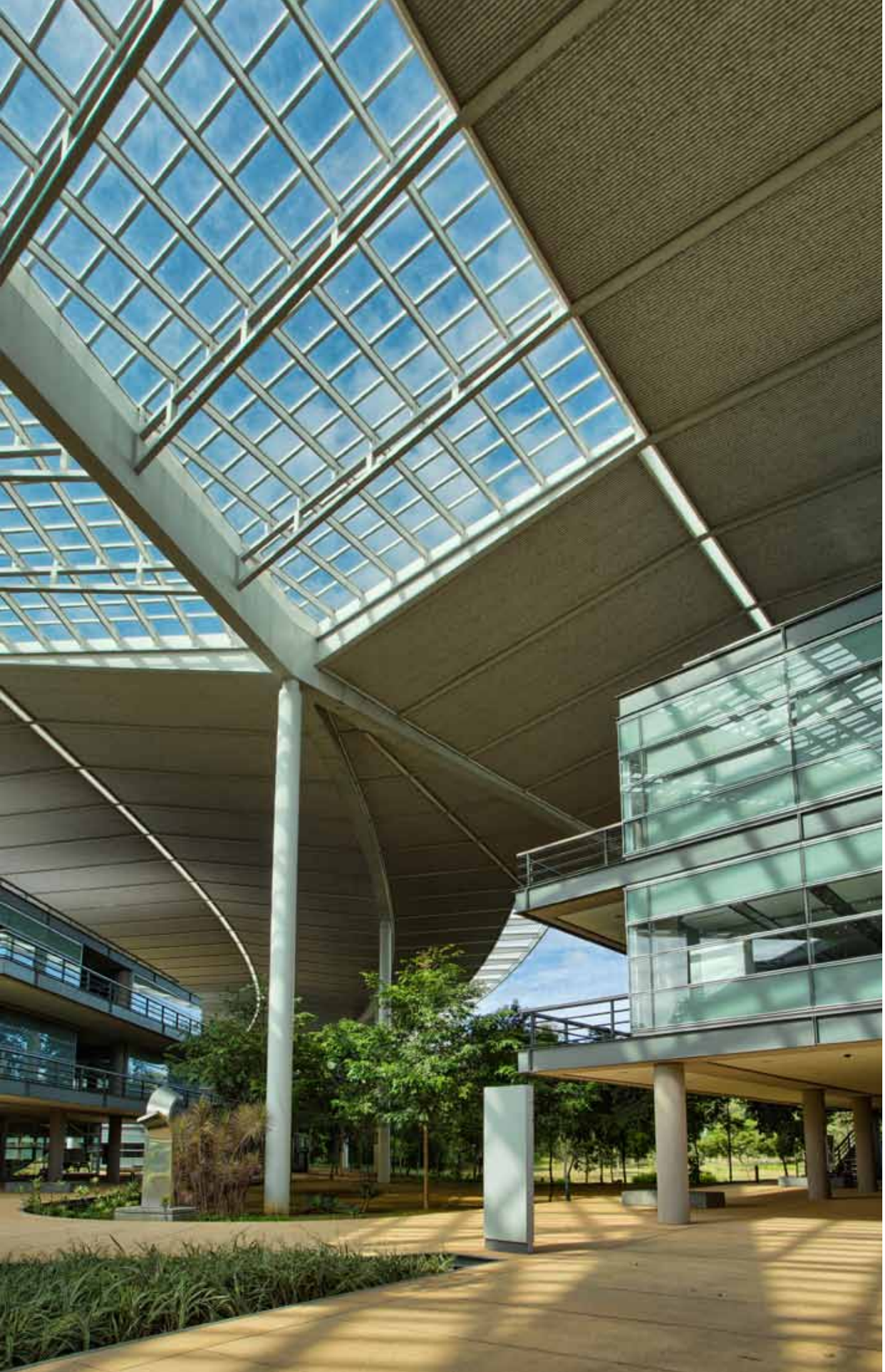
Among other things, the Transformation Plan underscored the importance of measuring performance, so research performance was monitored through Key Performance Indicators (KPIs). These KPIs include submission of research grants, securing research grants, publication of research work, and the extent of network and collaboration.

Several meetings, discussions and workshops were held to ensure that research areas meet the needs of the industry. From the five technology platforms, the university identified nine Mission Oriented Research areas: Enhanced Oil Recovery, Carbon Dioxide Management, Deepwater Technology, Nanotechnology, Green Technology, Biomedical Technology, Hybrid Energy Systems, Intelligent Cities, and Sustainable Resources.

In addition, the university set up seven R&D research centres including the Centre for Automotive Research and Electrical Mobility, Centre for Research in Ionic Liquids, Centre for Intelligent Signal and Imaging Research, Gas Separation Research, South-East Asia Carbonate Research Lab, Centre for Enhanced Oil Recovery, and Centre for Biofuel and Biochemical Research.

Over the years, new R&D research centres, now called Centres of Excellence, have been established including Centre of Innovative Nanostructure and Nanodevices, Research Centre for CO_2 Capture, and Centre for Corrosion Research.

The Transformation Office, now called the Project Management Office, was set up in April 2011 to drive the implementation of the Transformation Plan. To further propel the transformation journey, UTP named four champions, namely Dr Ahmad Fadzil for leadership, Mohamed Noor Rosli Baharom for Research Culture, Associate Professor Dr Hilmi Mukhtar for Competency and Professor Dr Abdul Rashid for Research Performance.



“We want to produce the best possible graduates, which is why only students with the right credentials are enrolled at UTP, and these are the students that we can shape and develop.”

Solihuddin Ahmad Nasarudin
Registrar

"The thing about UTP is the flexibility and willingness to support the staff to grow. In 1999, when I first came in, some research facilities were not in place but UTP was very supportive. Whatever you need, they will try to get it for you provided that your request benefits society and others."

Associate Professor Dr Nor Hisham Hamid
Deputy Vice Chancellor (Student Affairs & Alumni), UTP

Creating the research ecosystem

UTP needed to catalyse its people, change their mindset and the culture so that they would become more research active. To address this, the Research Enterprise Office which was set up back in 1999 had to play a more active role. Dr Abdul Rashid, who was Deputy Vice Chancellor for Research and Innovation (2009–2016), says up till then the office had only been playing the role of facilitator.

However, with the transformation, its goal was no longer just to facilitate research but also to drive and promote it. This included managing both research and consultancy projects in terms of their submissions, progress performance, financial allocation and utilisation and human resource management.

To address the competency gap among academic staff especially in applying for government grants and increasing its pool of principal investigators, in 2009 the university organised the E-Xcel workshop in collaboration with experts from public universities, the Ministry of Science and Technology and the Ministry of Education. Later that year, the Research Enterprise Office conducted another workshop for staff and students on opportunities to secure funding and grants from Cradle Fund Sdn Bhd, a company wholly funded by the Ministry of Finance.

The Research Enterprise Office, which was renamed Research & Innovation Office (RIO) in 2011, was expected to fulfil the requirements of university researchers, attend to and appropriately channel requests made by external clients, and continue meeting the future R&D needs of the university, including intellectual property requisition management and commercial exploitation of technology.

Under Dr Abdul Rashid's leadership, RIO established a few service centres such as the Centralised Analytical Laboratory which houses many high-end analytical instruments, the High Performance Computing Centre to support large-scale engineering simulation and data processing, and the Design & Prototyping Centre to assist researchers to rapidly produce tangible products from idea and conception.

Consistent with industry being one of the pillars of the research ecosystem, the university continues to ensure that the research undertaken is industry relevant and is achieved through collaboration, partnership and close engagement with reputable players of the oil and gas industry such as PETRONAS, Shell, Baker Hughes, Schlumberger, Technip and Halliburton. UTP crossed new borders when it inked MoUs with renowned centres of learning such as Lehigh University in the US, and University of Bergen and University of Stavanger in Norway.

As a result of its industry engagement, UTP was able to attract industries to undertake UTP Professorial Chairs, an endowed Chair offered to those who have extensive credentials to support the university's academic and research efforts. The first of these was the Shell Professorial Chair in Petroleum Geosciences and the Southeast Asia Carbonate Research Lab (SEACARL) in 2006.

"The Transformation Plan was a means for UTP to chart its way towards increased international visibility. For the team, the experience of spearheading the UTP transformation helped to build our own resilience, and being able to influence the change process is in itself a reward."

Professor Dr Hilmi Mukhtar
Dean, Faculty of Engineering and Director of Transformation Office 2011–2016

This was followed by the Schlumberger Chair in Petroleum Engineering, Mitsubishi Chair in Green Technology, and Technip Chair in Deepwater and Subsea Technology. More recently, the university established the PETRONAS Carigali Professorial Chair in Enhanced Oil Recovery (EOR) and Sapura Kencana Professorial Chair in Integrated Deepwater Construction and Drilling. *(see pages 67 and 86)*

The impact of these Professorial Chairs cannot be underestimated. "They bring with them a wealth of knowledge, network and contacts needed for UTP. These Professorial Chairs also help raise UTP's profile because they act as UTP ambassadors to the outside world. This heightens the university's reputation and links us to the outside world and to their networks," says Dr Abdul Rashid, pointing to the example of the Mitsubishi Chair Professor Dr Yoshimitsu Uemura.

"Prof Dr Uemura basically opened up Japanese universities to UTP. Through his networking and contacts, today we are able to work with some 10 to 15 universities in Japan covering research and teaching, joint research, and joint publications. We have visiting professors and student exchange at undergraduate and postgraduate levels, and in some cases, joint supervision of doctorate candidates, all of which would not have happened without Prof Dr Uemura's initiative."

Opposite page
More than 1,000 experts from 40 countries gathered at the fourth World Engineering, Science and Technology Congress (ESTCON2016), a biannual event led by UTP and supported by the Ministry of Higher Education, Ministry of Science, Technology & Innovation, Agensi Inovasi Malaysia and Yayasan UTP to determine a more sustainable future. The event was officiated by Dato' Seri Idris Jusoh, Minister of Higher Education, on 15 August 2016 at the Kuala Lumpur Convention Centre.

"The campus has been described as emblematic of high-tech architecture that provides an inspiring structure for progressive education in this rapidly developing nation. As we move forward towards the knowledge economy, we will intensify our efforts in developing the right competencies and capabilities required by the rapidly changing business environment. The university is well placed to leverage on the diversity of our graduates, faculty members and our learning partners both in terms of activity and geographical location, to work and learn from amongst the best organisations in the world today."

Datuk Ainon Marziah Wahi

Chairman of ITPSB Board, 2004–2010 and Vice President, Human Resource Management, PETRONAS, 2002–2009

What's achieved and what's ahead

Growth in the university's funding for research has been exponential – from 1997 to 2007, UTP secured RM20 million in research funding but from 2008 to 2015 the total funds secured for all grants stands at close to RM200 million. UTP researchers and academicians are prolific – they have published in journals and presented at conferences more than 10,000 articles and papers.

Some of the university's early R&D success stories include the development of a monitoring system for diabetic patients in 2008 – a project spearheaded and anchored by Dr Ahmad Fadzil under the Centre for Intelligent Signal & Imaging Research (CISIR). As a testament to how far UTP has come in its research journey, in 2014 CISIR – which focuses on biomedical image analysis with neurochemical imaging as its research niche area – was recognised as a National Higher Institution Centre of Excellence.

UTP also recently established the Centre of Advanced Process Safety (CAPS) to provide support in the advancement of knowledge, research and services to industries in the effort to safeguard the industrial workplace. The centre's vision is to become a recognised referral centre and a partner of choice in process safety in Malaysia and Asia Pacific by 2025. The centre, headed by Professor Dr Azmi Shariff, began research in process safety in 2003, and over the years a number of postgraduate students have graduated in the areas of risk assessment, inherent safety, fire hazard analysis, toxicity and process safety management. Many journals and conference papers have been published in these areas.

CAPS was appointed by the Department of Occupational Safety and Health Malaysia to conduct a Regulatory Impact Assessment on the revision and improvement of Control of Industrial Major Accident Hazards (CIMAH) regulations 1996 by including process safety management elements.

In recent years, UTP has established linkages with the University of Melbourne in a few areas including gas purification, fracking technology, water purification, neuroscience and neural engineering. With Monash University, UTP is looking to evaluate the performance of materials during shale gas production and to investigate corrosion in pipelines. Biomedical signal and imaging work on the brain is another area of interest with this university.

UTP is collaborating with the Chinese University of Petroleum, Beijing, with which it will share information on enhanced oil recovery, petroleum geoscience and drilling engineering. In addition, UTP is working with Case Western Reserve University on the development of lightweight structures for automotive applications and materials with directionally controlled properties.

In 2014, UTP signed 20 MoUs with 13 universities and six industries and research institutions across four continents. In the same year, UTP filed 72 patents, of which 11 have been granted, bringing its total patents filed to date to 337 with 29 granted since 2009. Three products were commercialised in 2014. UTP was granted its first overseas patent application in the US in the field of digital imaging.

The university has also participated in various local and international exhibitions including the International Exhibition of Inventions, New Techniques and Products of Geneva; British Invention Show; and International Invention, Innovation and Technology Exhibition (ITEX).

At ITEX 2015, UTP bagged 70 awards – 18 gold, 30 silver and 17 bronze medals and five special awards – the highest number of awards. The university was conferred the event's top honour – the Ministry of Science, Technology and Innovation (MOSTI) Patron Award. The ITEX awards not only contribute towards UTP's list of inventions and innovations, but also open up opportunities for the commercialisation of its new products and ideas.

In 2015 and 2016, UTP's researchers boosted the university's status when they received accolades from the government. Dr Azmi, who heads both the Carbon Dioxide Capture Research Centre and CAPS, was recognised as one of the Top Research Scientists of Malaysia by the Academy of Sciences Malaysia – the very first research scientist from UTP to be given the honour. The following year Associate Professor Dr Suzana Yusop from the Department of Chemical Engineering also received the same honour. Dr Suzana is a pioneer in developing and setting up biomass research areas at UTP.

Technologists from UTP also bagged the National Technologist Award for two years running, in 2015 and 2016. Adz Jamros Jamali won the award for the invention of the Cylindrical Dielectric Resonator Antenna Array 802.11, a WiFi Application – the first technologist to win the award for UTP. In 2016, Shaiful Hisham Samsudin won the award. Shaiful, a UTP Laboratory Facilities Services Department staffer serving the university's Department of Mechanical Engineering, was recognised for his work in friction stir-welding. The National Technologist Award is an annual prize presented by the Science, Technology and Innovation Ministry in recognition of the achievements of technologists and laboratory assistants in science and technology research work. *(see sidebar on pages 64 and 65)*

But what is perhaps one of the university's most meaningful achievements to date is being awarded a six-star rating for its research, development and commercialisation efforts by Malaysia Research Assessment Instrument (MyRA). Although the university narrowly missed out on securing research university status, this recent achievement – the first by a private and non-research university in the country – places it in the same league as the five public universities with the research university status. UTP was assessed for its research and innovation achievements from eight different areas of quantity and quality of researchers, quantity and quality of research, number of postgraduates, quality of postgraduates, innovation, professional services and gifts, networking and linkages, and support facilities.

UTP, however, is not resting on its laurels as it moves towards strengthening its research capabilities. "There will be more platforms to help academics increase the number of paper citations and build a stronger academic reputation," says Professor Dr Hilmi Mukhtar who was the Director of the Transformation Office. Also in the pipeline, he adds, are plans to recruit key experts particularly Nobel Laureates from key subject domains, and at the same time provide opportunities for staff exchange to widen the scope of research and fortify UTP's global networks.

Vice Chancellor Datuk Ir Abdul Rahim Hashim stresses the importance of looking ahead where research is concerned. "We are at the stage where we have achieved the targets of previous master plans. The question is what should we be doing next. We need to review the Mission Oriented Research areas and consider if these areas are still relevant, if there are other areas we need to look at. We need to ensure that the research undertaken makes a difference and an impact."

Above
Shaiful Hisham Samsudin, winner of the National Technologist Award 2016

Left
Associate Professor Dr Suzana Yusop was named a Top Research Scientist of Malaysia 2016

LEADING THE TRANSFORMATION

Datuk Dr Zainal Abidin Kasim's career had already stretched to nearly three decades when he agreed to become Rector (and later Vice Chancellor) of Universiti Teknologi PETRONAS (UTP) – a role, he says, which he enjoyed the most throughout his entire career at the national oil corporation.

But when he was first approached, he was hesitant. "It meant moving to Tronoh, a town I had never heard of. Was it Tronoh or Trolak, I asked myself. At the time, I had never been separated from family and I was headed towards retirement, so I was not interested in the job. But I changed my mind within the same day. I like interacting with young people and to share my life experiences, so I thought why not give it a try."

This led to a seven-and-a-half year tenure (2005–2012), which was peppered with numerous challenges, highlights and memories, which the 64-year-old cherishes to this day. So meaningful were his years at UTP that each time he sets foot on the campus he feels a profound sense of nostalgia.

His affection for the university and its team appear to be reciprocated. At his farewell dinner in October 2012 there was a moving tribute from the then Deputy Vice Chancellor of Academic Professor Ir Dr Ahmad Fadzil Mohamad Hani. The outpouring of emotion from the staff and students was understandable given that it was under Dr Zainal's tenure that UTP embarked on the journey that would transform the university from one focused on teaching and learning to one that emphasised research and development.

The university's Transformation Plan was his brainchild, and among other things the plan refocused UTP's research efforts and ensured that the research undertaken was aligned with PETRONAS and the country's aspirations and directions. "I found that some of the research had been done for research sake. The challenge therefore was how to do research that would be of real use to the industry, and there was also the issue of creating a research culture."

The Transformation Plan, which was completed in 2010, yielded impressive results. In 2007, 55% of the academic staff were principal investigators but by the time Dr Zainal left UTP in 2012, this had increased to almost 100%. Similarly, research publications grew from one publication per capita in 2007 to an average of 2.5 publications per capita in 2012. When Dr Zainal came on board, UTP did not have any patents registered under its name, but by his departure there were 12 patents granted and a further 11 already commercialised.

To ensure that UTP remained industry relevant, under Dr Zainal's stewardship the university brought world class programmes through strategic partnerships such as Heriott Watt (MSc Petroleum Engineering), University of Manchester (MSc Process Integration) and Institut Français du Pétrole (MSc Petroleum Geoscience). Deeper ties with the industry were forged during Dr Zainal's tenure, among them the Professorial Chairs with Shell, Schlumberger and Mitsubishi, and MoUs on training and development, sponsorship of software technologies, to name a few.

Beyond these contributions, Dr Zainal is fondly remembered for his generosity, in particular the time spent with students, staff and alumni. In his speech at the farewell, Dr Ahamd Fadzil said: "The most notable and appreciated quality of Datuk Dr Zainal is his genuine warmth and concern over his people (which) springs from his sincere interest to develop his people, both the employees and the students.

"I am always, and still am, amazed by Datuk's ability to motivate everyone around him, especially the students. As a lecturer myself, I find it an excruciating task to motivate them, but for Datuk, it seems a breeze. When you are with the students, you are at ease – you can sing, you can dance and you can even play music with them – and not many of us can do the same."

On his last night at the university, Dr Zainal spent three hours talking to the students – offering advice and sharing his personal experiences. “I believe in setting a good example and I always tell students to have these three senses – sense of purpose, sense of urgency and common sense. With these you get a balanced life and life becomes meaningful,” says Dr Zainal who is now a board member of Yayasan UTP.

That the former Vice Chancellor left such an impact on the people at UTP stems from the fact that he made UTP his home – driving back to his wife and family in Kuala Lumpur on Friday nights and returning to UTP on Sunday afternoons, a routine he kept for the seven-plus years.

Dr Zainal began his career with PETRONAS in 1976, at the Laboratory Services Department, which would later become the Petroleum Research Institute, and subsequently renamed PETRONAS Research & Scientific Services Sdn Bhd (PRSS). In 2000, he was appointed the General Manager of PETRONAS Technology Resource Management Division (TRM), and in 2004, he became the General Manager of Group Technology and Capability Management.

Of all the roles, he has held, Dr Zainal maintains that his tenure in UTP remains the most memorable. “This was the best job and the one I enjoyed the most since I joined PETRONAS in 1976.”

TOP RESEARCH SCIENTIST OF MALAYSIA

Professor Dr Azmi Shariff joined UTP in November 1997 and since then he's had more than 20 patents and copyrights filed and led more than 25 research projects. Apart from in depth knowledge and understanding of the subject matter, Dr Azmi attributes the success of his research works to understanding research gaps and being able to relate practical needs and the novelty of the proposed ideas with the value of the potential output.

"A strong team and creative leadership are among the key factors of a research group," he says. Dr Azmi, who heads both the Carbon Dioxide Capture Research and Advanced Process Safety research centres, says that at the early stages of developing his team, he made an effort to meet and convince some of the academicians to join him. Collectively, the team brainstorms to develop winning research proposals and has successfully secured many external grants from government and industries.

"Some of the biggest grants we have secured are for dehydration of water vapour from natural gas using IRIS (RM8 million), separation of carbon dioxide (CO_2) from natural gas using environmentally friendly solvents (RM3 million), and recently RM9 million for CO_2 capture from natural gas using cryogenic technology."

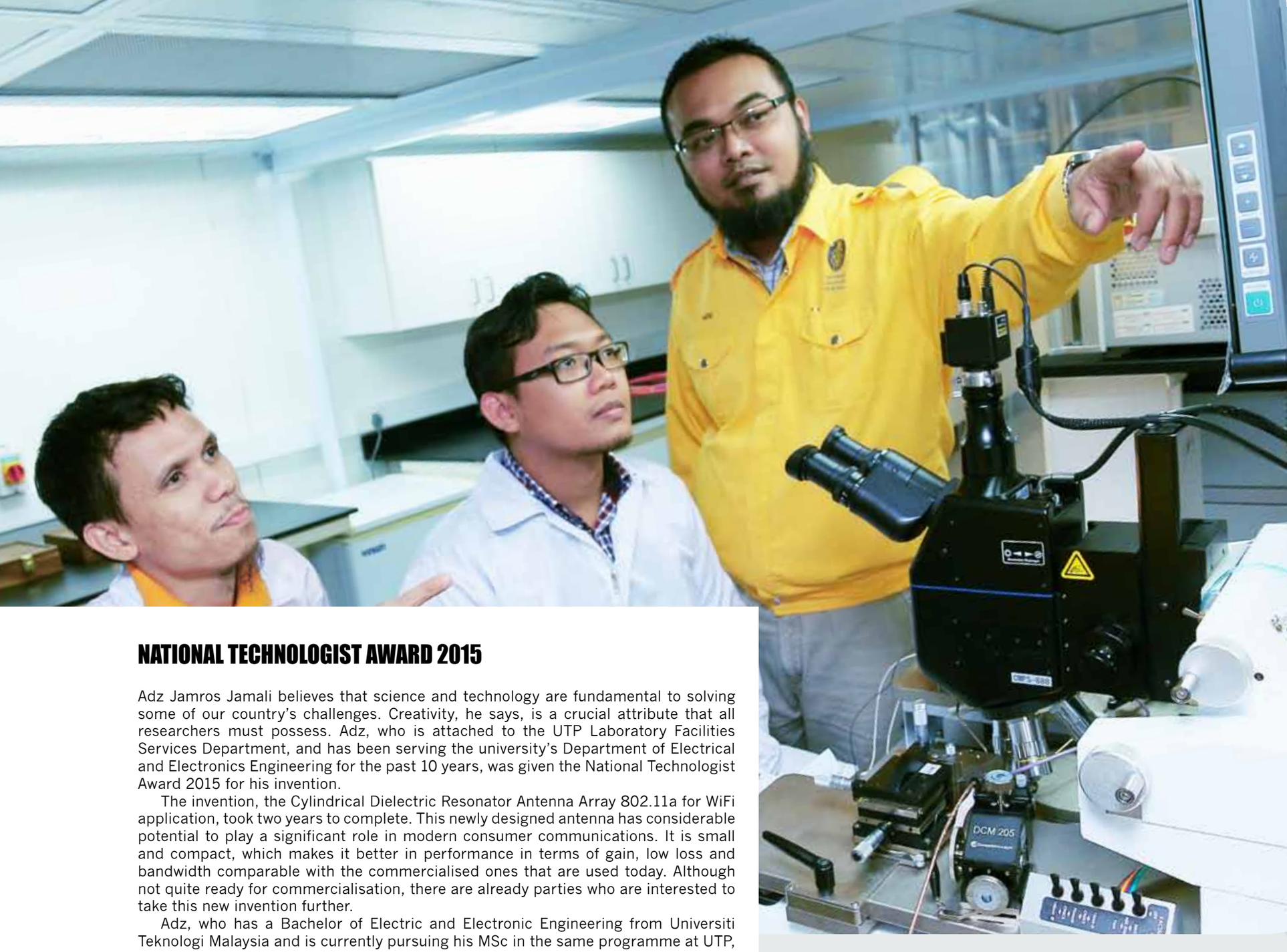
Another key success factor, he adds, is to have a pool of good postgraduate students. "The postgraduate students help to explore potential projects in fundamental research. I regularly meet the postgraduate students, to check and ensure the novelties in their research work, polish their publications for reputable journals, patent the novel findings, exhibit their findings and products, and finally shape their thesis for them to graduate. They are the source for my publication in reputable journals, patents, and products for exhibition."

Dr Azmi, who has a Master's and doctorate in Chemical Engineering respectively from the Victoria University of Manchester and the University of Leeds, adds that UTP's transformation towards becoming a top research university has also given him opportunities such as graduate assistance, short-term grants, and research space and equipment.

He recognises the importance of working and collaborating with industries, pointing out that many of such research projects have translated into practical applications.

An example of one of the systems and tools developed for PETRONAS Group Technology Solution is called Electrical Safety and Operability Review (P-ELSOR). It has become a technical standard for the development of a new process plant or extension of an existing plant involving an electrical system. P-ELSOR helps avoid major accidents such as fire, explosion or toxic releases that could cause fatalities, asset damage and environmental pollution. He adds that hollow fibre membrane predictor tools are now used by PETRONAS Carigali and PTT Thailand to optimise the utilisation of membrane modules for separation of CO_2 from natural gas.

On the recognition by the Academy of Sciences Malaysia, Dr Azmi says this has spurred him to up his research endeavours and contributions. "I would also like to share my experience in research and mentor and develop young researchers to become successful scientists."



NATIONAL TECHNOLOGIST AWARD 2015

Adz Jamros Jamali believes that science and technology are fundamental to solving some of our country's challenges. Creativity, he says, is a crucial attribute that all researchers must possess. Adz, who is attached to the UTP Laboratory Facilities Services Department, and has been serving the university's Department of Electrical and Electronics Engineering for the past 10 years, was given the National Technologist Award 2015 for his invention.

The invention, the Cylindrical Dielectric Resonator Antenna Array 802.11a for WiFi application, took two years to complete. This newly designed antenna has considerable potential to play a significant role in modern consumer communications. It is small and compact, which makes it better in performance in terms of gain, low loss and bandwidth comparable with the commercialised ones that are used today. Although not quite ready for commercialisation, there are already parties who are interested to take this new invention further.

Adz, who has a Bachelor of Electric and Electronic Engineering from Universiti Teknologi Malaysia and is currently pursuing his MSc in the same programme at UTP, says the recognition is exciting and came very much as a surprise.

"This award means as much to UTP as it does to me, and should be shared by all who have contributed to creating an environment of freedom and creativity. The win was not just an individual gain," he says. He adds that this research was a team effort involving UTP academic staff and colleagues, namely Associate Professor Ir Dr Zuhairi Baharudin, Associate Professor Dr Mohd Haris Md Khir, Mohd Azman Zakariya, Noor Azwan Ahmad and Mohd Hasrul Firdaus Rostam.

As a technologist, his primary role is to assist and consult in any research and project related to radio frequency (RF) and microwave fields. He is also actively involved in research works with electrical vehicles.


NECO

Views from the Chairs

" Our most important milestones are the successful industry careers of our graduates and we have many. The scientific collaboration with other centres is key to building up reputation and trust with our industry partners. The university is full of bright researchers and engineers. Linking them, listening to them and focusing on common projects is the key to success, and essential for industry-minded graduates."

— **Professor Dr Michael C Poppelreiter**, Shell Chair in Petroleum Geosciences, and Director South East Asia Carbonate Research Laboratory

" A solid working relationship between the Chair, UTP and PETRONAS have been at the heart of the collaboration. The coordination and steering committees both at the Centre of Enhanced Oil Recovery and UTP level have kept the direction and projects focused, and have maintained an emphasis on research quality and the timely delivery of results. World-class laboratory facilities have been set up and a roadmap has been created and followed which orients the Centre and its activities to tackle key long-term technical targets. To date, five Masters and seven doctorate students have graduated from the Centre and at least a further six postgraduate students are expected to graduate in the near future."

— **Professor Dr Christopher Peter Lenn**, Schlumberger Chair in Petroleum Engineering, and Head of Centre of Excellence in Enhanced Oil Recovery

" I joined UTP on 1 July 2009 as the Mitsubishi Corporation Chair – a position gifted by Mitsubishi Corporation, Japan, as a token of appreciation for the long partnership between PETRONAS and Mitsubishi Corporation in oil and gas business. The first target was to establish a biomass research centre, which was achieved in 2010, and over the years there have been many milestones including the publication of academic papers, patents filed, securing of grants and collaborations with universities and industries in Japan."

— **Professor Yoshimitsu Uemura**, Mitsubishi Corp Chair in Green Technology, and Head of Centre for Biofuel and Biochemical Research

" One of the achievements to date from the sponsorship is a model test for floatover condition in UTP wave basin, which was presented in an international technical conference. Mentoring many postgraduate students is also one of the achievements of the programme. There is a saying I often use – 'Back to Basic'. When we are completely stuck, we may need to go back to the starting line. Basic knowledge and theories in each specific area are like that starting line. This means, teaching basic knowledge and theory to students and encouraging them to extend the boundary of their research area would be the most important asset of UTP, not only today but also in future."

— **Dr Oeju Hwang** Technip Chair in Deepwater Technology & Subsea Technology

Research *milestones*

2005

MAY / UTP receives one gold, eight silver and 10 bronze medals at the 16th International Invention, Innovation, Industrial Design & Technology Exhibition (ITEX).

2006

APRIL / UTP research team bags one gold and two silver medals at the 34th International Exhibition of Inventions, New Techniques and Products of Geneva.

MAY / UTP hauls six gold, two silver and seven bronze medals, and receives the Moscow Award for Best Invention in Medical Science at the 17th edition of ITEX.

NOVEMBER / Commencement of Enhanced Oil Recovery Research (Geoscience and Petroleum Engineering).

DECEMBER / Inauguration of the UTP-Shell Academic Chair Sponsorship in Petroleum Geosciences.

2007

JANUARY / Inauguration of the Schlumberger Professorial Chair in Petroleum Engineering.

JUNE / UTP collects five gold medals, one silver and one bronze medal at the 35th International Exhibition of Invention, New Techniques and Products of Geneva.

2008

MAY / UTP's Centre for Intelligent Signal & Imaging Research unveils the Computerised Diabetic Retinopathy Monitoring and Grading Prototype System, to screen diabetics for early diabetic retinopathy. The prototype is used in clinical trials at the Ophthalmology Department of Hospital Selayang, Selangor, prior to commercialisation.

JUNE / UTP wins five gold, three silver and one bronze medal at the 24th Invention & New Product Exposition 2008 (INPEX 2008) in Pittsburgh, US.

JULY / The Civil Engineering Department opens an offshore lab – a wave tank 22 metres long, 10m wide and 1.5m deep which can generate many types of waves with state-of-the-art capability to observe and measure the effect of waves on structures such as jetties, seawalls, revetments and pontoons.

NOVEMBER / UTP bags three gold and one silver medal at the Innova Eureka Exhibition held in Brussels, Belgium.

2009

MARCH / The South-East Asia Carbonate Research Laboratory (SEACARL), a strategic collaboration between UTP and Shell is officially launched.

APRIL / UTP wins three gold, a silver and a bronze for all five products exhibited at the 37th International Exhibition of Invention, New Techniques and Products, Geneva.

Memorandum of Understanding (MoU) is signed with Mitsubishi Corporation to establish the Mitsubishi Corporation Professorial Chair in Green Technology.

MAY / UTP bags five gold, three silver and a bronze at the 20th edition of ITEX.

NOVEMBER / UTP bags two gold, one silver and one bronze at the 61st International Trade Fair "Idea-Inventions-New Products" (IENA 2009) held in Nuremberg, Germany. UTP participates in the competition for the first time by submitting four research works.

UTP signs a five-year MoU with MIMOS Bhd to collaborate on three research areas – Grid Computing, Micro-Electro Mechanical Systems (MEMS) and Software Testing. The collaboration involves two programmes in UTP – Electrical & Electronic Engineering and Computer Information Sciences – and MIMOS Test Centre of Excellence, MIMOS Grid Computing Cluster and MIMOS Micro Systems and MEMS Cluster.

UTP bags three gold and a bronze medal at the Innova Eureka Exhibition, Brussels.

2010

MAY / UTP wins three gold, 17 silver and six bronze at the 21st edition of ITEX. Also, a Russian Special Award and Best Green Invention Award.

NOVEMBER / UTP bags seven gold and six silver medals at the Innova Brussels Exposition. UTP also wins the Innova Environment and Energy Special Award.

DECEMBER / Participating for the first time at the Seoul International Invention Fair 2010, UTP bags two silver, a bronze and a Special Award.

2011

FEBRUARY / A new Centre of Biofuel and Biochemical Research (CBBR), which aims to be a leading centre for biomass research in Asia, is officially launched at UTP.

APRIL / UTP team bags two gold and four silver medals, and a special award at the Geneva 39th Salon International Inventions, Switzerland.

JUNE / UTP bags five gold and the Best Invention of the Pacific Rim special award at INPEX 2011 in Pittsburgh, US.

UTP Centre of Innovative Nanostructure & Nanodevices (COINN) is selected as one of the five National Centres of Excellence (COE) in Nanotechnology out of 17 universities. The centre is recognised for its continuous R&D in nanotechnology, focusing on the alternative and renewable energy sector. Awards to NanoMalaysia COEs were presented during NanoMalaysia Summit and Expo 2011) by the Ministry of Science, Technology and Innovation.

JULY / UTP receives RM12 million – the highest amount for a single project – from the Ministry of Higher Education's Long-term Research Grant Scheme. The project was entitled "Next Generation Technology Based on Urea" and headed by Professor Dr Noorhana Yahya, Dean of the Faculty of Science and Information Technology. This project was a collaboration between UTP, Universiti Sains Malaysia (USM), Universiti Putra Malaysia and Universiti Teknikal Malaysia Melaka (UTeM).

NOVEMBER / UTP wins eight gold, three silver, and one bronze medal and five special awards for the 12 innovations exhibited at the Innova Brussels Exposition 2011.

2012

MAY / All 51 of UTP's exhibits at ITEX 2012 win medals – 35 gold, 14 silver and two bronze medals. UTP also wins the Patron Award from the Ministry of Science, Technology and Innovation (MOSTI) for the overall winner, Hanita Daud for the Best Invention ICT Award, Prof Dr Norani Muti Mohamed for the Best Green Invention University Category and Associate Professor Dr Faiz Ahmad for the Severstal Russian Steel Division, Severstal OAO Award and the Best Booth Award.

Official opening of UTP's Advanced Technology & Innovation Centre at Technology Park Malaysia in Bukit Jalil. It functions as a 'one-stop centre' to showcase UTP's expertise and facilities worldwide.

JUNE / UTP wins six gold medals and the Best Invention of the Pacific Rim for the second consecutive year at INPEX 2012 in the US.

OCTOBER / All of UTP's 18 products and inventions win medals – nine gold, eight silver and one bronze – at its first participation in the British Invention Show, London.

NOVEMBER / UTP is awarded a five-star (Excellent) rating by Malaysian Research Assessment Instrument (MyRA) for its research, development and commercialisation efforts – the first private university in Malaysia to achieve such recognition. With this recognition, UTP can apply for research incentives of RM5 million.

2013

FEBRUARY / Signing ceremony for the establishment of the Technip Professorial Chair in Deepwater and Subsea Technology.

MAY / UTP wins 31 gold, 54 silver and two bronze medals at ITEX 2013.

JULY / UTP and D3 Chemicals Sdn Bhd sign an agreement to pursue collaboration in the field of corrosion inhibitor technology and other areas of mutual interest.

MoU with National Tsing Hua for collaboration in nanoelectronics research.

OCTOBER / UTP wins eight gold, two silver and two Special Awards at the British Invention Show, UK.

NOVEMBER / UTP undergoes the final process of the Research University auditing by the Ministry of Education.

2014

FEBRUARY / Standards Malaysia recognises UTP's Centralised Analytical Laboratory and Control and Instrumentation Laboratory for its calibration and testing methods, procedures and equipment. Both labs are deemed as meeting international standards and receive the MS ISO/IEC 17025:2005 certification. The laboratories are accredited under the Laboratory Accreditation Scheme of Malaysia (SAMM), as they meet technical and management requirements for testing and calibration competency, and operate in accordance with MS ISO 9001, Quality Management Systems.

MARCH / UTP receives the highest grant awarded by MOSTI in 2014 – RM1.3 million from the TechnoFund for a single project, the "Rescue-I Monitoring System" project led by Associate Prof Dr Ahmad Kamil Mahmood, Dean of the Faculty of Science and Information Technology.

MAY / UTP wins 26 gold, 25 silver, two bronze and a Special Award at ITEX 2014.

OCTOBER / UTP wins one gold, five silver, two bronze and a Special Award at BIS 2014.

CISIR is recognised as a National Higher Institution Centre of Excellence (HICoE). CISIR conducts translational research in real world multi-disciplinary areas such as biomedical engineering, visual surveillance, remote sensing and neuroscience.

NOVEMBER / UTP bags five gold, three silver and six Special Awards at Innova 2014 in Belgium.

2015

FEBRUARY / UTP wins five gold, two silver, two bronze and a Special Award at the Malaysia Technology Expo 2015.

MAY / UTP wins 18 gold, 30 silver, 17 bronze and five Special Awards and at ITEX 2015.

NOVEMBER / UTP is awarded a six-star rating by Malaysian Research Assessment Instrument (MyRA) for research, development and commercialisation efforts – the first private university in Malaysia and the only non-research university to achieve such recognition.

2016

JANUARY / UTP secured three big grants from the Petroleum Research Fund amounting to RM72 million.

The ground breaking Alpha Matrix project received the largest single research grant of RM42 million from the Petroleum Research Fund.

NOVEMBER / UTP retained its six-star rating from MyRA.

Chapter 4

Engineering AN IMPACT

Engineering an impact often means working hard and playing equally hard.

Universiti Teknologi PETRONAS' narrative would not be complete without a look into the bearing it has had on the students and members of the faculty and management, and its association with the industry and the surrounding community.

The students are undoubtedly its most important stakeholders, and from the onset the university together with the top management of PETRONAS decided that UTP would produce well-rounded graduates with attributes such as technical competence, critical thinking, and communication and behavioural skills, to name a few. The extent of the university's success in this respect is illustrated in many ways – from the successful careers of its graduates, the high employability rate as well as favourable feedback from both students and employers.

In its quest to be a leader in technology education and a centre for creativity and innovation, the university invested in its people through various staff development programmes and initiatives. But more than that, the culture of learning and constantly striving to improve has also encouraged the university's non-teaching staff to aim higher, and these success stories are truly inspiring.

What sets UTP apart from many institutions of higher learning in the country is its rapport with industry, particularly oil and gas. This is unsurprising given that this was the primary goal of the university at its inception – to produce skilled and professional workers to meet the needs of PETRONAS and the oil and gas sector. The engagement with this sector has deepened over the years, and been extended to various other industries such as automotive, technology and biomedicine.

Equally significant is the university's involvement with the communities around its campus in Perak. UTP has always recognised the importance of making a positive difference in the lives of those beyond its walls, a belief that has been strengthened over the years. The following pages detail the particulars of UTP's impact on its stakeholders.

CREATING WELL ROUNDED GRADUATES

One of the key findings of UTP's academic master plan study was the conclusion that UTP needed to produce graduates who are not only technically competent but who also possess other traits such as a capacity for lifetime learning, critical thinking, communications and behavioural skills, business acumen, practical aptitude and problem solving ability.

This involved an investment of time and effort on the curricula, the method of teaching and learning, the design of academic facilities and student services, linkages with industry, and academic and business processes. Besides engineering and technology education, the university boasts a Department of Management and Humanities, which began as a general studies programme, offering English language courses, business and management, and humanities and critical thinking.

Although UTP's focus is on engineering and technology education, its undergraduates are also exposed to a wide variety of sports and performing arts opportunities. UTP's 32-member gamelan troupe, Sanggar Kirana, for instance, has performed at various festivals locally and internationally such as Malaysia Night 2015 in London, International Javanese Gamelan Festival in Bandung and the International Gamelan Festival in Yogyakarta. Sanggar Kirana has the distinction of being the first Malaysian university group to produce a gamelan album, Gatra Pertama.

The university's performing arts corps is considered to have one of the best traditional dance ensembles in the country. At the 10th Cheonan World Dance Festival in Korea in 2013, it emerged tops in the folk dance competition, beating many international professional dance groups.

UTP is also recognised as a sports powerhouse – emerging overall champions at the recent private higher education institutions sports meet. At the Kejohanan Sukan Masiswa Zon Utara 2016, which was organised in collaboration with the Education Ministry and Majlis Sukan IPTS Malaysia (Masiswa), UTP was the overall champion – for the seventh year in a row – excelling in bowling, table tennis, badminton and volleyball. In the International Students Sports Carnival (ISSC), a national level competition organised by the Ministry of Higher Education, UTP has been overall champion for six years. This speaks to the capability and talent of UTP students in various sports fields.

Mohamed Noor Rosli Baharom, former Deputy Vice Chancellor of Students Affairs and Alumni (2010–2016), says in many of his conversations with UTP alumni, participation in sports and co-curricular activities was highlighted as among the reasons for their success in the workplace. "Sports has helped students develop character, thinking skills, and an appreciation for teamwork and humility."

But what is perhaps UTP's greatest point of differentiation is its seven-month Student Industrial Internship Programme, which was implemented from the very beginning. It has been recognised by Talent Corp as the best structured internship programme offered by educational institutions in the country.

Today, more than 600 local and international companies participate in UTP's Student Industrial Internship Programme. These include PETRONAS, Shell, ExxonMobil, Schlumberger, Halliburton, Technip, BASF, GE Oil & Gas, Mercedes AMG PETRONAS F1 Team and Hitachi Ltd.

"The concert (Tapestry of Colours) provides the opportunity for students at UTP to display their artistic talents. This is in keeping with the goal of ensuring that an educational experience at the university succeeds in nurturing well-rounded graduates who excel not only in their respective disciplines, but who are ever willing to support causes that advance the interests of humanity at large."

Tan Sri Shamsul Azhar Abbas

Pro Chancellor, UTP, 2010–2015 and President & CEO, PETRONAS, 2010–2015

Opposite page
Faculty, management and students at the 2015 Tapestry of Colours performance at Dewan Filharmonik PETRONAS.

Malaysian rock band Bunkface performing at UTP's 2014 campus music festival Euphonious.

Both the university and participating organisations see the seven months as an appropriate length of time for the undergraduates to complete real-world tasks and projects. Students return from these internships more confident, they understand what working life entails, they know how to present and carry themselves in the workplace, and employers appreciate these qualities – making UTP graduates some of the most sought-after in Malaysia.

Ninety per cent of UTP graduates are employed within six months of graduation, and 95% within nine months. Pointing to the high employability rate of UTP graduates, Mohamed Noor says 61% of graduates are employed by the oil and gas sector, including oil majors and multinational corporations. "This is because UTP graduates have the technical competency, effective communication skills and good problem solving skills."

UTP undergraduates are also given overseas study opportunities through overseas internship and student exchange programmes *(see UTP Goes Global on page 78)*. These experiences are not only directed towards technical learning but also aimed at developing soft skills, business acumen, communication skills and adaptability. International exposure like this make for well-rounded graduates who are better prepared to work in the global field.

Over the years, these graduates have gone on to carve fulfilling careers in oil and gas as well as other industries, and what distinguishes them from other university graduates is their experience at UTP.

Muhammad Shafiq Shahrul Amar, who graduated with a Bachelor in Computer & Information Sciences in 2006, for example, is the founder and principal of robotic education centres called Creative Minds, a registered education provider founded in 2011 under the Ministry of Education. Its aim is to foster interest in science, technology, engineering and mathematics among primary and secondary school students. Muhammad Shafiq credits his experiences at UTP for having shaped his outlook and approach to work and life. "After graduation, I worked with several leading oil services companies. The academic knowledge and soft skills gained from my UTP days were used to my advantage," he says.

Dr Chan Tuck Leong, who was in the pioneer batch of engineering undergraduates and later completed his MSc and PhD at UTP (incidentally, his PhD certificate serial number is D.0001) says former lecturers have had a tremendous influence and shaped his approach to work. "Ask not what the company can do for you, ask what you can do for the company – a UTP mentor once said to me. My experience in UTP was exactly that and this has been the guiding compass in my career. Deliver my best results wherever I am and recognition will present itself," says Chan, who is currently Head of the EPCC Project Integration at Pacific NorthWest LNG Ltd in Canada.

In what is best described as things coming full circle for UTP, current undergraduates are saying the university's mission to produce well-rounded graduates is the reason why they chose to study at UTP.

Third Year student Arif Hakimi Mohammad Naim says although he had not heard of UTP until after his SPM trial exam, it was his first choice of university when he learnt of its mission. "The university not only focuses on preparing you to be a technically competent engineer, but also equips you with various vital soft skills throughout the process. Although I received offers to study abroad, I decided to study in UTP as I believe that I can gain so much from this university," says Arif Hakimi who is pursuing a Bachelor of Engineering in Chemical Engineering. And by the looks of things, he has embraced the UTP approach in moulding students wholeheartedly – participating in extra-curricular activities, honing his leadership skills and meeting new people.

Arif Hakimi's experiences, like those of many of the undergraduates before him, reinforce the fact that UTP has and will continue to leave an impact on its most important stakeholder.

"UTP has always strived hard to ensure that its curriculum content is industry relevant and up-to-date. This does not only provide undergraduates with the technical skills and knowledge of their chosen field, but also prepares them to become industry-ready, leading to high industry acceptance of UTP graduates. It also sets the seal on UTP's position as the partner of choice in technology education."

Dato' Raiha Azni Abd Rahman

Chairman, ITPSB, 2013–present and Senior Vice President, Group Human Resource Management, PETRONAS, 2013–present

At UTP, things come a full circle: from tentative adolescents to confident market-ready professionals.

Peer-to-peer learning happens both in the lecture theatres and during extra-curricular activities.

UTP GOES GLOBAL

Students at UTP are provided with many opportunities to expand their horizons through student exchange programmes and industrial internship tenures with both local and global establishments, and this comes under the purview of the Centre for Student Internship, Mobility and Adjunct Lectureship (CSIMAL).

UTP also hosts foreign and visiting students and lecturers in mutually beneficial activities and programmes. In 2014, UTP hosted 25 delegates from 20 foreign universities under the Global Engineering Education programme. In 2015, CSIMAL held Summer Educational Programmes with the Far Eastern Federal University of Russia as well as a few Japanese universities. These programmes expose students to technical short courses and other cultural exchange activities.

The university linked up with nine Japanese National Colleges of Technology (KOSEN) – an initiative that saw it hosting nine students and three professors in a cultural exchange stint in 2014. CSIMAL is actively promoting the Research Experience for Undergraduates programme – designed to invite and bring in foreign students to contribute towards projects undertaken by UTP's Mission Oriented Research centres and laboratories.

Overall, CSIMAL facilitated the movement of 152 UTP students to 10 countries in 2014, while 60 members of its academic staff went on attachments with foreign universities. In return, UTP hosted 114 students under various programmes from industrial training to short courses and exchange visits while 80 foreign and local lecturers stepped into UTP for visits, research attachments, and the Adjunct Lectureship Programme.

Students and Alumni Weigh in

" My experience during my undergraduate studies was an important push in the right direction. My lecturers were personable and we were able to have meaningful dialogues. One of the professors used to tell us that one goes to university to school the thought process besides gathering academic knowledge. This holds very true – apart from studying, I learned a lot through my interactions with the campus community. "

— **Dr Chan Tuck Leong**, Bachelor of Engineering in Chemical Engineering 2001, MSc in 2004 and PhD in 2008

" I look at my learning in UTP from two perspectives, from the academic and soft skills angle. The academic learning helped me on all the theory to be applied when I entered the workforce while the projects, assignments and group tasks were vital for my soft skills development. I learnt to manage time, work in a team and carry our presentations. "

— **Muhammad Shafiq Shahrul Amar**, Bachelor of Technology in Computer & Information Sciences 2006

" I am thankful for the co-curricular subjects and clubs, which I took seriously because I was later able to develop a career in entertainment and performing arts and build upon the music and dance qualifications that I already had at that time. I continued as a professional performing artist, working in television, major theatres and production houses within Malaysia. In 2012, this so-called side profession turned into my main profession when I was recruited as the Head of Entertainment to set up Puteri Harbour Family Theme Parks in Nusajaya, Johor. "

— **Rosdayana Rosti**, Bachelor of Technology in Business Information Systems 2006 & Executive Director of UTP Alumni Association 2015–2016

" As exco for International Affairs, my responsibility is to facilitate the settling in of international students. I approach these students and encourage them to participate in various campus events. It's also important that these students assimilate into life here, and adapt to the culture, in particular the food. "

— **Muhammad Jaffer Hashmani**, Second Year, Bachelor of Engineering in Petroleum Engineering and International Affairs at Student Representative Council exco member

" The lecturers and management always offer encouragement not only in terms of what we can achieve academically but also emotionally and spiritually. In terms of extra-curricular activities, although there is interest in the corporate social responsibility events organised, the same cannot be said about students getting involved in issues related to the campus, in particular the Student Parliament. This is an area we are prioritising. "

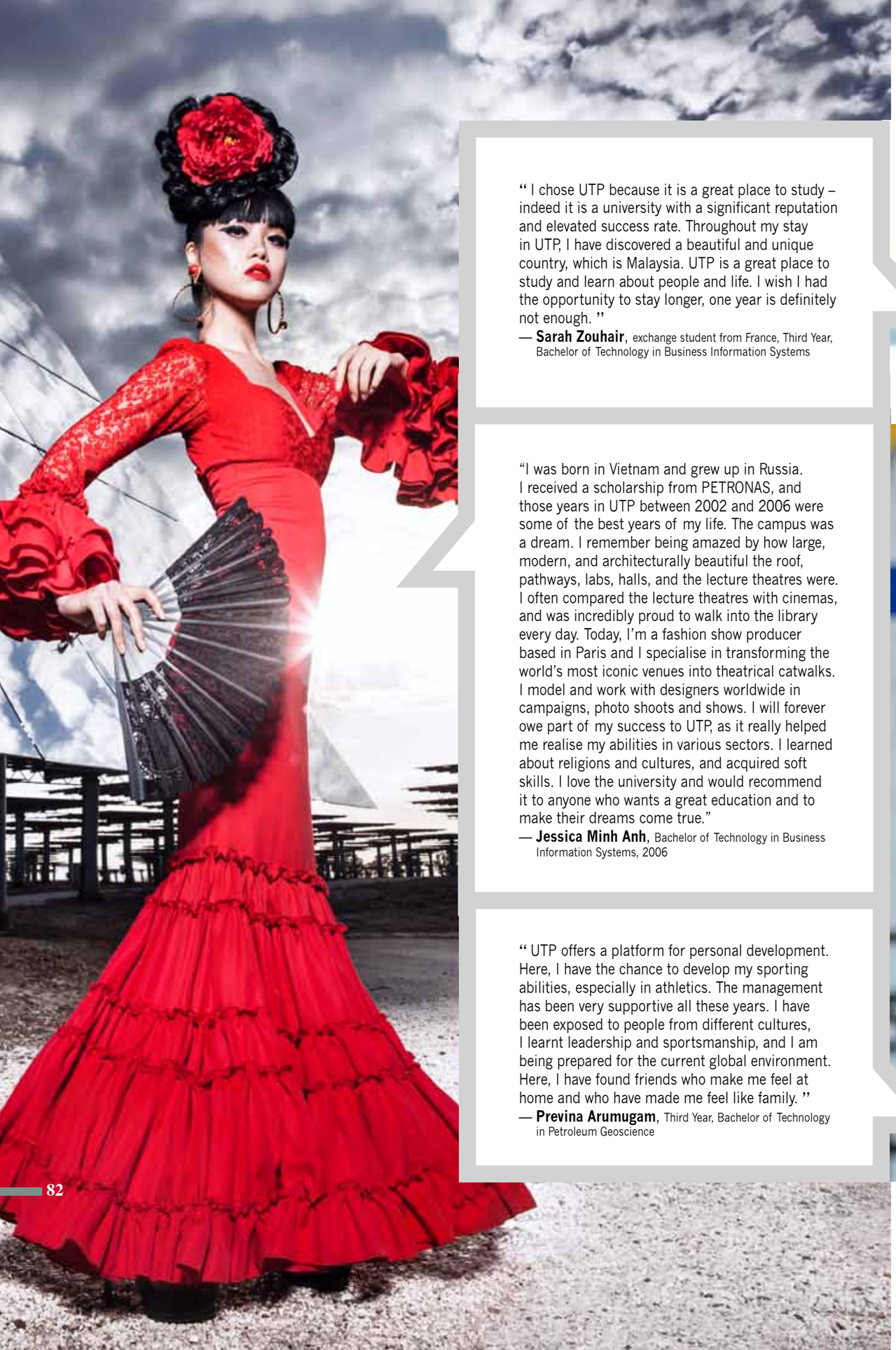
— **Nur Sakinah Ahmad Rosli**, Second Year, Bachelor of Engineering in Civil Engineering and Deputy President, Student Representative Council

" Students need to change their mindset with regards to their involvement in extra-curricular activities. A lot of UTP students join events and clubs to get a certificate, which they think will later be very valuable to be attached with their CV when applying for jobs or internship placement. But what matters most is the experience they gain through the involvement. Students should join events to learn new things, meet new people and develop their soft skills. "

— **Arif Hakimi Mohammad Naim**, Third Year, Bachelor of Engineering in Chemical Engineering, and recipient of Outstanding Leadership Award at UTP Varsity Awards 2015

" I have truly made the most of my time here at UTP. I have organised about 25 events, and I'm involved in eight clubs as well as being part of the executive council of the Student Representative Council 2015/16. I enjoy challenges and like to look for creative solutions for every issue. Throughout the events, I learnt about the significance of solidarity, collaboration, and authority. "

— **Soon Li Lee**, Third Year, Bachelor of Technology in Business Information System



" I chose UTP because it is a great place to study – indeed it is a university with a significant reputation and elevated success rate. Throughout my stay in UTP, I have discovered a beautiful and unique country, which is Malaysia. UTP is a great place to study and learn about people and life. I wish I had the opportunity to stay longer, one year is definitely not enough. "

— **Sarah Zouhair**, exchange student from France, Third Year, Bachelor of Technology in Business Information Systems

"I was born in Vietnam and grew up in Russia. I received a scholarship from PETRONAS, and those years in UTP between 2002 and 2006 were some of the best years of my life. The campus was a dream. I remember being amazed by how large, modern, and architecturally beautiful the roof, pathways, labs, halls, and the lecture theatres were. I often compared the lecture theatres with cinemas, and was incredibly proud to walk into the library every day. Today, I'm a fashion show producer based in Paris and I specialise in transforming the world's most iconic venues into theatrical catwalks. I model and work with designers worldwide in campaigns, photo shoots and shows. I will forever owe part of my success to UTP, as it really helped me realise my abilities in various sectors. I learned about religions and cultures, and acquired soft skills. I love the university and would recommend it to anyone who wants a great education and to make their dreams come true."

— **Jessica Minh Anh**, Bachelor of Technology in Business Information Systems, 2006

" UTP offers a platform for personal development. Here, I have the chance to develop my sporting abilities, especially in athletics. The management has been very supportive all these years. I have been exposed to people from different cultures, I learnt leadership and sportsmanship, and I am being prepared for the current global environment. Here, I have found friends who make me feel at home and who have made me feel like family. "

— **Previna Arumugam**, Third Year, Bachelor of Technology in Petroleum Geoscience

" After completing my BSc in Electronics and Biomedical Engineering I started work as a teaching assistant at my alma mater the University of Gezira in Sudan. It was here that I learnt that PETRONAS was offering scholarships for staff of some Sudanese universities to further their studies at UTP. Although I had not heard of UTP, I applied and secured a scholarship to undertake my MSc in Electrical and Electronics Engineering. I completed this in 2011 and subsequently commenced with my PhD in the field of Biomedical Micro-Electro-Mechanical Systems. In the time that I have been at UTP, the university has helped shape my personality in terms of leadership, project management and communication skills. I have grown academically through meetings with other academicians at conferences, workshops and seminars. "

— **Almur Abdelkreem Saeed Rabih**, currently pursuing PhD in Electrical and Electronics Engineering

" I received unconditional support from the UTP management team and PETRONAS Sponsorship Unit when I was forced to defer my undergraduate studies for two years to undergo chemotherapy. The UTP management team and lecturers were very understanding and continuously supported me. They provided me with a superb and splendid platform for me to excel and become a well-rounded student despite my health condition. UTP is definitely an extraordinary university as it not only focuses on producing high quality and competent graduates, but also on elements of caring, empathy and compassion. I am forever indebted to UTP. The happiest moment for me was when I was awarded the prestigious Gold Chancellor Award at the 15th Convocation. In addition, I was awarded the Vice Chancellor Gold Award, Best Final Year Project Gold Award and Best Plant Design Project Award at the convocation ceremony. My journey back to campus in 2013 while having to bear with the toxic effects of oral chemotherapy drugs was not easy as I often had to be away for check-ups. I am glad that I persevered despite all the odds stacked against me and I finally made my parents and sister proud. "

— **Irene Lock**, Bachelor of Engineering in Chemical Engineering 2015

Words From A Visionary

"My installation as Chancellor is something that I will always remember, in particular the moment I wore the robe," recalls Tun Dr Mahathir Mohamad, who served as the Chancellor of Universiti Teknologi PETRONAS (UTP) from 2004 to March 2016. During his tenure Dr Mahathir received regular updates on the university's progress, from teaching and research to its physical development.

"The impressive environment created in UTP is one I view with pride. UTP's track record in research and development is equally impressive. One must commit to continuous improvement. My hope for UTP is for it to become the premier university in Malaysia and be recognised worldwide for the quality of its teachers and knowledge imparted to students."

Dr Mahathir is a big presence at the many events held at the university. UTP's annual Public Lecture series saw the Chancellor "mobbed" by students and other admirers of this Malaysian icon. Every interface with the former Prime Minister is a lively exchange of views, insights and perspectives on leadership, the knowledge economy, the bridge between science and the humanities and the demands made on the 21st century graduate.

There is a need for us not just to teach science, engineering and to develop technologies. There is a need for us to understand or to be guided by better values, more human values. That is why there must be a bridge between these two.
– **Towards Sustainability: Bridging Engineering, Technology & Humanities,** 15 June 2010

You must have the latest knowledge and you must have the character of people who are able to meet challenges, who believe in themselves.
– **Graduates in the 21st Century,** 7 March 2013

To do anything right, to succeed in anything, there must be passion. If you are in the university to study engineering for example, you must have passion to study because you want it and because it is good for you. Only then will you work very hard.
– **Social Evolution in Malaysia: What's Next?** 19 August 2015

CONDUCIVE FOR LEARNING

From the beginning, the university invested in the development of its academic staff, establishing the Trainee Lecturer Scheme in September 1999 and later the Staff Development Programme in November that same year.

Both these initiatives were aimed at expediting the recruitment of qualified staff to meet academic manpower requirements and to ensure availability of competent and qualified teaching staff especially at the postgraduate level. What is especially gratifying is the fact that many of those who took up these programmes remain UTP staff to this day.

The culture of learning and constant improvement at UTP has encouraged its non-academic staff to acquire new skills and to an extent, to re-invent themselves. Take for example Zaharin Abdul Wahab, a clerk at the Research and Innovation Office's IP and Commercialisation Unit. Zaharin, who was a bus driver with Transnasional, joined UTP in 1997 as a driver in the maintenance department, and among other things also did some clerical and despatch duties. Over the years, thanks to the encouragement from his managers and superiors, Zaharin enrolled in courses related to administration work, such as word processing and basic spreadsheet.

"I found the environment conducive for learning and improvement and there was a lot of encouragement given. For example the previous Vice Chancellor Datuk Dr Zainal Abidin Kasim was the one who urged me to move out of maintenance. I told him that I felt that admin work was out of my depth but he was very supportive, as were lecturers like Dr Mohamed Ibrahim Abdul Mutalib who told me not to worry and even took me under his wing," says Zaharin.

Senior Technologist at the IT and Multimedia Services Department, Sallehan Din has a similarly inspiring story of progress. Sallehan, a former employee of PETRONAS Dagangan Bhd joined UTP in July 1996 as an office boy and was soon promoted to clerk. He was not content to remain in that position for long, and fuelled by his interest in audio-visual production, he honed his skills in this area and applied for a position in the multimedia unit but was rejected twice.

But he didn't give up. "I worked hard to prove myself, and in the end, I produced an event montage and this won the bosses at the multimedia unit over," says a visibly pleased Sallehan. Today, together with the others in the team, Sallehan is responsible for the audio-visual documentation of the university's events, activities and milestones.

Sallehan scored a coup for non-academic staff when he won the Bronze Medal at the Seoul International Invention Fair 2010 for inventing a device that is capable of sending digital images via radio frequency – useful to support emergency and disaster recovery activities when other communication devices fail.

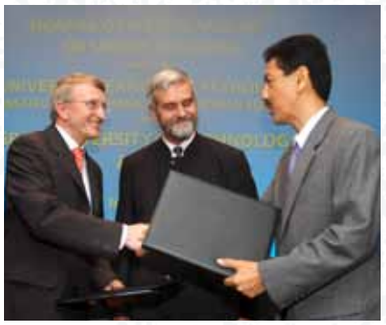
From the top
Zaharin Abdul Wahab
Sallehan Din

Right & opposite page
Preparing for a knowledge-driven economy means having access to powerful research facilities.

TIES WITH INDUSTRY

One of the university's core strengths is its close collaboration with industry – expressed both in the areas of teaching and learning, and research. Although initially these industry collaborations were solely with PETRONAS and its operating units, the last 12 years has seen UTP open its doors to other companies, not limited to oil and gas.

Juniwati Rahmat Hussin, who was Chairman of the Institute of Technology PETRONAS Sdn Bhd (2010–2013), PETRONAS Vice President of Education (2009–2010) and later Vice President for Human Resource Management (2010–2012), says given PETRONAS' investments into UTP (scholarships and funds for research), it was natural that the interests of the national oil corporation had to be given first priority.



In the initial years, most of the students at UTP were sponsored by PETRONAS. Even the research work was aligned to PETRONAS requirements.

It was later acknowledged that deeper ties with industry needed to be forged if UTP was to be sustainable and achieve international status as an institute of higher learning, and contribute widely to the engineering, science and technology needs of the country and industry at large. This led to a diverse range of collaborations with the private sector – from joint research and development, staff attachments, information sharing, and professorial chairs. It also included student internships and sponsorships, and adjunct lecturer programmes.

A few organisations established campus ambassador programmes for a stronger brand presence at UTP and collaborated in enhancing the teaching and learning experience as well as generally forging closer ties. The Shell Campus Ambassador Programme, for instance, educates students on career opportunities in the oil and gas industry, and Shell in particular, through regular engagements between students, faculty members and Shell staff. In the Schlumberger Ambassador Programme there are five promoted areas namely the Schlumberger Professorial Chair in Petroleum Engineering, the industrial internship programme, adjunct lectureship, software donation and recruiting programme.

Networking and strategic partnerships remain a strong feature at UTP – with industry and other institutions of higher learning. In 2015, UTP inked agreements with three Australian universities to share experience and expertise in key areas such as corrosion, ionic liquids, shale gas, enhanced oil recovery, biofuels, biochemical and biomedical technology.

The sponsorship of professorial chairs have paved the way for industry to forge closer ties with UTP, leading to the establishment of various research centres such as the South East Asia Carbonate Research Lab (Shell), Centre for Biofuel and Biochemical Research (Mitsubishi), Centre of Enhanced Oil Recovery (Schlumberger), just to name a few.

Collaborations with industry have seen the establishment of various technical centres at UTP. These include the Halliburton Technical Excellence Centre, which was opened in 2005, and was the first of its kind to be set up outside of North America. The highly specialised upstream oil and gas training facility provides both classroom and hands-on operations training. In 2013, the Baker Hughes-UTP Petroleum Education Centre was set up, aimed at enhancing the competency of the local oil and gas industry workforce.

A 2014 MoU between UTP and Virtalis Limited (Virtalis) and Thames Technology Sdn Bhd will pave the way for the university to be the first in Asia to boast of a virtual reality lab. It will be used to teach and train engineering students in virtual reality and advanced visualisation technology.

In 2014, the university set up the UTP-Huawei Communications Laboratory, through collaboration with Huawei and the Multimedia Development Corporation, which will offer the Huawei Certified Datacom Associates (HCDA) certification programme at UTP. The goal is to develop talent and certified professionals in ICT-related areas among UTP undergraduate students. It supports the need for up-skilling training requirements for the local community in Perak.

Bilateral arrangements see the university and industry in dynamic, mutally enriching relationships.

Closer Ties On Campus

" The relationship has been growing from strength to strength – in the last five years since we started the campus ambassador programme, we have increased intake to 25 graduates a year (previously eight a year) and that is a strong confirmation that we are happy with the quality of UTP graduates. The advantage that UTP graduates have is the experience gained from the internship programme. They know exactly what the industry is like out there and are practically equipped to hit the ground running when they join Schlumberger. That is one clear advantage. The interest in the internship programme at Schlumberger has also increased – the number now peaks at 36 interns per year compared with single-digit numbers in the past. We want to enhance the learning experience by providing state of the art software and hardware that can help the learning experience itself to be more up to date. Looking ahead, I think there is more potential in the area of research, and we also offer a prestigious scholarship programme for Malaysians who want to pursue a doctorate in petroleum engineering at UTP. "

— **Azhar Abdullah,** Vice President Asia, Schlumberger Shared Services

" UTP has always been a key partner for collaboration and graduate recruitment due to its diverse and talented pool of students as well as proven track record. Over the years, this has paved the way for stronger ties to be formed with the university such as the formation of the Shell Professional Chair in Petroleum Geosciences, and South East Asia Carbonate Research Lab in 2007. The key objectives of the Shell Chair were to build carbonate geology capabilities in Malaysia given the importance of the Central Luconia gas fields of Sarawak and to lead relevant and useful research on the Miocene gas reservoirs of Sarawak. Capability building is done through teaching and research but focuses on developing skilled graduate students, specialising in carbonates. Shell also partners with UTP students for the Society of Petroleum Engineers (SPE) conferences. We also conduct SPE workshops and talks with UTP students on campus and in the Shell office. In the past three years, we have recruited 30 graduates from UTP for various Shell Malaysia businesses, demonstrating the wide range of the UTP graduates' qualifications. We are proud to say that we have a healthy gender balance among the UTP graduates that have been hired. "

— **Zahid Osman,** Vice President Venture Development Project, Shell Integrated Gas & Vice President, Malaysia Gas Association.

Malaysian astronaut Datuk Dr Sheikh Muszaphar Shukor talks to UTP students about reaching for the stars.

Above
UTP students are enthusiastically engaged in several CSR projects near the campus.

Opposite page, left
Associate Professor Dr Shahrina Md Nordin

CARING FOR THE COMMUNITY

The university has been supportive of local community programmes – through Persatuan Isteri dan Kakitangan Wanita PETRONAS (PETRONITA), the Student Representative Council, clubs and organisations, UTP has organised and hosted several community projects such as Titian Budi, Menggapai Impian and Mission Awareness Programme, to name a few. Many of these corporate social responsibility (CSR) programmes have been philanthropic in nature – aimed in part to inculcate awareness and sensitivity among UTP students on the importance of giving back to society.

More recently, UTP refocused its CSR initiatives to emphasise capacity building for empowerment, access to information, improving the health and wellbeing of local communities, and providing an avenue for growth through the university's research and innovation capabilities. The university, with data from the Perak Tengah Community Welfare Department, identified five vulnerable villages within the campus vicinity.

In 2013, UTP "adopted" one of these villages – Kampung Aji, located in Bota, some 15km from UTP – and designed intervention programmes that would address the needs of this community. A roadmap was drawn up identifying three key strategies, namely capacity building, infrastructure development and economic development.

Associate Professor Dr Shahrina Md Nordin, Director of the Project Management Office, who is leading the project, says to date new businesses have been established for women entrepreneurs in the village, a small factory has been set up for one of the cottage industries and the dilapidated surau refurbished to serve as the village community centre.

"We will soon embark on the second phase of the project which is to expand the businesses, and for this we are partnering with organisations such as MARDI (to address the quality of the products) and SIRIM (for branding and packaging). In addition to business skills, we also need to include capacity building and initiatives to motivate the villagers," she says.

Besides socio-economic initiatives, UTP is cognisant that there has to be a spillover effect in the area of education. "Having been in existence for 20 years, we are where we have aspired to be, so the question now is how can the university have a positive impact on the community? We found that the schools around us are not performing well. Out of the 236 schools in Perak, 16 secondary schools in Perak Tengah are at the bottom of the rung. We would like to see our successes radiate through to the surrounding communities," says Dr Shahrina.

One of UTP's goals is to improve the academic performance of the selected low performing schools and promote the understanding of Science, Technology, Engineering and Mathematics. The education CSR approach is divided into four tiers over a period of five years (2016–2021) – covering motivation, efficacy enrichment, academic intervention programmes and tertiary institutions.

"There isn't much industry or manufacturing in Perak Tengah but we hope that with these light intervention initiatives we can help break the cycle of poverty," says Dr Shahrina.

NEW ADDRESS

In 2015, Universiti Teknologi PETRONAS (UTP) made a small change that would have gone unnoticed by most – after almost two decades of being associated with Tronoh, the university changed its address to Bandar Seri Iskandar. The change was a logical one and better reflects the university's location.

Bandar Seri Iskandar, about 40km southwest of Ipoh on the main Ipoh-Lumut Highway, only got its name after a few institutions commenced operations here. The first was USM's Engineering branch campus that was later acquired by UTP, the Perak campus of Universiti Teknologi MARA (UiTM), and more recently UCSI University.

This small town has certainly come a long way from the 1990s when much of the landscape surrounding the UTP campus, was made up of disused mining ponds and oil palm plantations.

The town's boom over the years can be attributed to the growth of UTP – the spillover effect of campus development, increase in the student population and staff strength meant that there had to be sufficient retail, food and beverage, entertainment and amenities.

Today, Bandar Seri Iskandar is the biggest township development project in central Perak encompassing an education hub, residential properties, and leisure and entertainment facilities.

Picture by Ivan Gaban

Chapter 5

BUILDING

on excellence

Universiti Teknologi PETRONAS (UTP) has achieved many milestones over the last 20 years, including accolades and recognition for its academic programmes and research achievements. These accomplishments, however meaningful, do not suggest that the university can or should rest on its laurels.

As much as the university can take pride in the impressive achievements, it continues to strive to improve. The current UTP leadership is cognisant of the need for the university to pick up its pace, take its achievements one notch higher and galvanise the team towards accomplishing its vision and goals. And to that end the university is setting its sights on attaining global prominence.

The following pages detail UTP's plans for the next few years and what's required for the university to make that leap towards international distinction.

At UTP, high octane leadership ignites cutting edge innovation, best-in-class creativity and passion.

INSPIRING FUTURE SUCCESS

UTP has grown in leaps and bounds since 1997 – its academic programmes spread over three faculties now number 42, its academic staff strength currently stands at 407, to date the university has produced 14,617 graduates and currently has an enrolment of some 8,600 students from more than 60 countries around the world.

When benchmarked against other institutions of higher learning in the region and the world, UTP can hold its head up high.

In 2016, Quacquarelli Symonds (QS) recognised UTP to be among the world's elite private institutions at the rank of 127. The university's Chemical Engineering programme was ranked in the Top 150 in the world and Mechanical Engineering in the Top 200. In 2016, UTP also made its debut in the QS Top 50 under 50 and was one of three Malaysian institutions ranked in the 91–100 band. The ranking is based on the world's best universities that are less than 50 years old. For the first time the university also made it to The Times Higher Education (THE) World University Rankings 2016–2017, being ranked in the 601–800 band.

UTP is the only private university in Malaysia to be rated a four-star institution by QS, with a maximum five-star rating in five areas out of eight, namely employability, internationalisation, innovation, facilities and inclusiveness.

The university also boasts a rating of Tier 5 (Excellent) University for SETARA (the Rating System for Malaysian Higher Education Institutions) and achieved Tier 5 for D-SETARA (Discipline-Based Rating System) in Engineering.

These achievements – some attained over a short period of time – are truly something to be proud of.

Vice Chancellor Datuk Ir Abdul Rahim Hashim however believes that the university is still far from the finish line. "Education is a journey and the journey is such that it always evolves. This means that you need to constantly move forward. Technology is ever changing and developing, stakeholder expectations are more demanding, the area of teaching and learning keeps evolving as does research. So the goal post keeps moving."

Opposite page
Outstanding students, like these three top performers at the 9th Convocation in 2009, have helped UTP obtain impressive university rankings.

Global prominence

Through the years, UTP has remained steadfast in its vision to become a leader in technology education and a centre for creativity and innovation. UTP is unwavering in its goal to continue producing graduates who are creative and innovative. As part of its efforts to realise its full potential, the university constantly takes stock of where it stands, the progress it has made and the next steps.

"We have arrived at the stage where we have achieved the targets set out in the earlier master plan. Now we need to ask ourselves what do we do next? We need to look ahead in terms of what we should be doing in the area of teaching and learning, research, student experience and alumni management, among other things," says Abdul Rahim.

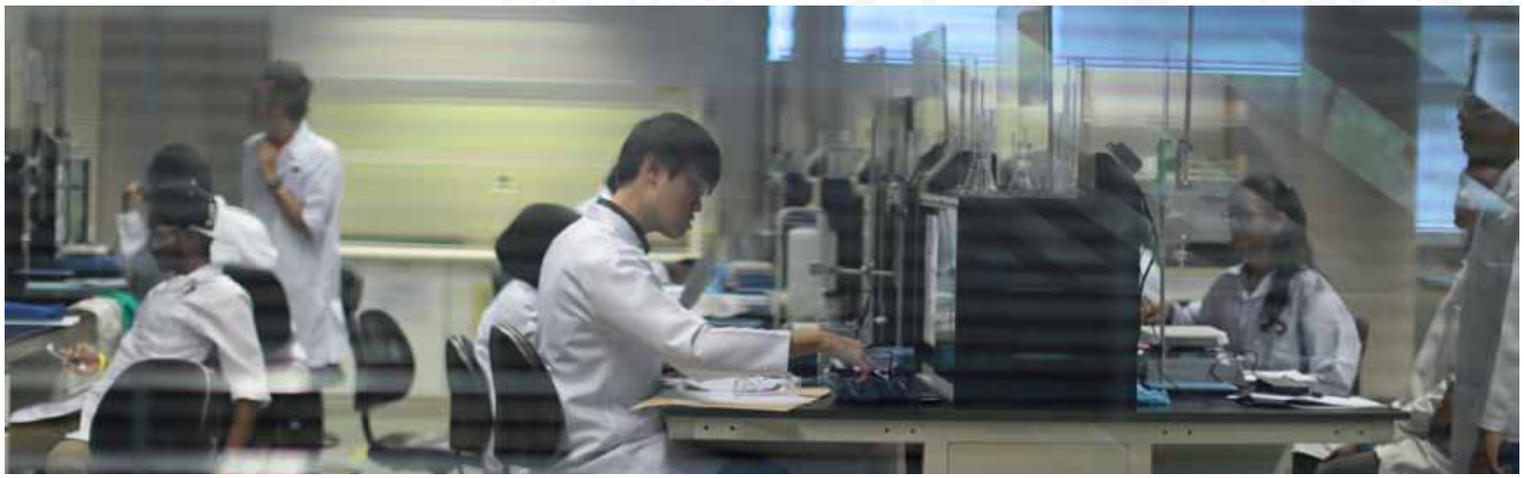
Beginning in 2016, the university set a new course, one that will lead to UTP attaining global prominence by 2025. The goal is to be in the Top 150 for all engineering programmes by 2020, and Top 100 by 2025. UTP is aiming for its research centres to be linked to other centres of excellence around the world, and to produce ground-breaking, peer-recognised research.

It's a tall order, and a number of strategies and initiatives have been put in place.

To take the university to the next level, UTP formed specially focused action labs to address and enhance operations. They are aimed at creating awareness about the university's goals and objectives as well as to invite and secure the involvement of staff. The primary objectives of these in-house action labs are to develop new aspirations, create new milestones, and to formulate, align and review goals and achievements.

Besides the action labs already established, UTP has also drawn up plans for additional action labs to address more areas of development and growth. Some areas it will be looking into are alumni management, leadership, creating a high performing culture, lab management, Yayasan UTP and funding. *(see page 110)*

The university also sought the assistance of international management consulting firm, Arthur D. Little, which had been responsible for two earlier master plan studies – the academic master plan and the research & development master plan. Following the studies undertaken, the university has identified 52 strategies with 154 action plans, which will be implemented in the coming years. A number of other strategic initiatives developed through the many action labs are also in the pipeline.



The way forward is for every UTP student to endeavour to be their best selves.

"UTP is still the top source of fresh graduates for oil and gas employers. About 92% of oil and gas companies in Malaysia recruit from among our graduates. However, there is always room to push for excellence. After two decades, we have to set a higher benchmark for our students whose futures are increasingly shaped by the global employment market and interconnectivity. We need to cultivate graduates with a more global outlook, which translates to being effective communicators by improving their English language proficiency and fostering an entrepreneurial mind-set required of a global industry leader. Students should be broad thinking and expand beyond their fields of expertise to be well exposed to other management elements in an organisation. Graduates must be aware that to survive in multinational companies with employees and customers in different countries with various cultures, we need young ones who can think internationally with a sense of ingenuity to rise above mediocrity in striving for excellence."

Datuk Wan Zulkiflee Wan Ariffin

Pro Chancellor, UTP, 2015–present and President & Group CEO, PETRONAS, 2015–present

Students at the heart of it

UTP's approach to teaching and learning, the seven-month industrial internship programme, and its emphasis on co-curricular activities to better develop students' leadership, communication and critical thinking abilities are anchored by its mission to produce well-rounded graduates. Although that mission has not changed, the university recognises that some areas need be strengthened to stay relevant.

One area, for example, is entrepreneurship. Abdul Rahim says studies have shown that by the time today's primary school pupils graduate from university, some 65% of today's jobs will no longer be in existence, partly because of the advances in technology and computing.

"So how do we prepare them for the future? We need to prepare them to be job creators instead of job seekers." Already, the university is exploring the possibility of working with small and medium enterprises (SMEs) in the state at which UTP students could undertake work attachments to learn the ropes and even contribute their knowledge.

Another subject that warrants attention is the strengthening of the university's values-driven education approach. "We need to reiterate and emphasise the importance of giving back, the spirit of volunteerism, and for students to take a high moral position so that when they graduate they are model citizens. Honesty, professionalism, integrity are some of the core values which they need to demonstrate," says Abdul Rahim.

Deputy Vice Chancellor (Student Affairs & Alumni) Associate Professor Dr Nor Hisham Hamid, says UTP is committed to providing an inclusive learning ecosystem that maximises the opportunities for students to work with, learn from and develop meaningful relationships with the faculty. In addition, the university has to create memorable learning experiences that educate and inspire students to be agents of positive social change. What's equally crucial, he adds, is that UTP aims to inculcate positive values in students so they become alumni who have a strong sense of pride, ownership and attachment to UTP. "So that when they graduate, they do not just get a degree but also learn about living, interacting with others, being responsible and compassionate, recognising, respecting and celebrating race and international diversity," he adds.

One area that the university is keen to enhance is student mobility – specifically giving students more opportunities to participate in international student exchange programmes or even undergo part of their industrial internship programme abroad. The aim is to enable all UTP students to experience an overseas stint or assignment by 2020.

On the infrastructure front, UTP is improving its facilities, among them the student centre and sports complex. "Our students are doing very well with the limited facilities here so imagine the possibilities once the improvements are made. The sky is the limit," says Dr Nor Hisham.

UTP recognises the importance of enhancing its relationship with its alumni. "We need to treat students as if they are the university alumni from the moment they set foot on the campus and not after they graduate. The point is to give them a good student experience, because alumni will come back and will be willing to give back if they've had an amazing experience," says Dr Nor Hisham, adding that some of the university-alumni engagements can include motivational talks or lectures by alumni.

“During my tenure as Pro Chancellor, what impressed me the most about UTP is its ability and focus that have resulted in the many achievements. For the team at UTP it’s worth remembering that to get this far in such a short span of time there must be something that keeps pushing you despite the obstacles. Remember the source of the fire in the belly. To the alumni, I urge you to actively contribute to making the university a better place to seek knowledge. Come back to meet your juniors, to guide them and inspire them. Help to enrol the brightest from your community into UTP. Help it to flourish and grow even further. Today, we are proud to be associated with PETRONAS. But we should be setting our sails towards the day when PETRONAS will be more proud of UTP!”

Tan Sri Sidek Hassan

Pro Chancellor, UTP, 2012–present and Chairman, PETRONAS, 2012–present

REFINING THE ART OF TEACHING

Teaching today has come a long way from the days of the humble chalk and blackboard. Thanks to technology, and the Internet in particular, students today have come to expect more innovative methods in the delivery and the assimilation of knowledge – requiring institutions of higher learning to also evolve and change with the times.

In keeping with its strong emphasis on research and innovation, UTP established the Centre for Teaching and Learning (CETaL) in October 2014. Its role is to take an in-depth look into teaching methods in a bid to improve the role of the lecturer in the classroom. The students are the frontline beneficiaries as their learning will be enhanced and knowledge better understood. In addition, academicians involved in this undertaking have the opportunity to create and innovate, and possibly publish their work. For UTP, apart from fulfilling its vision of being a leader in technology education, this endeavour would also create a database of learning methods for others to learn from.

CETaL focuses on two areas namely the Scholarship of Teaching and Learning (SoTL) and Enabling Technologies. SoTL’s ultimate goal is to create practical and applicable knowledge on teaching and learning methods. This is a scholarly inquiry into student learning that advances the practices of teaching. It is a systematic and intentional research that focuses on enhancing the student’s learning approach with research personnel collecting and analysing direct and indirect evidences of student learning.

Enabling Technologies on the other hand looks at how technology can facilitate teaching and learning to better secure the attention of the student and make learning a more interactive and engaging experience. Towards this end, CETaL works on the development of incubators for testing and evaluating the efficacy of technology in the classroom, and assessing the practical applications of said technology.

CETaL has been working on several projects, drawing on the participation of both the lecturers and the students in its research. These research activities in themselves are learning experiences for all participants.

Funded with a grant of RM750,000 from Yayasan UTP, CETaL is actively promoting its objectives and activities to attract more staff. It currently has some 100 associates and additional non-academic affiliate members supporting its activities.

Although CETaL’s research activities are aligned with UTP’s focus on research, development and innovation, its activities also pave pathways for the lecturers involved to publish and contribute towards the art of teaching, adding to the science and technology contributions of the university. The ultimate result would be higher order thinking and students who are critical thinkers and truth-seekers who have a love for lifelong learning.

CETaL helps pave pathways for lecturers to publish and contribute to the art of teaching.

IN-HOUSE ACTION LABS TO PROPEL UTP

Activities within the action labs focus on shared values and inculcate a culture for sustainability. The various action labs and their goals are as follows:

New initiatives at UTP aim to attract and retain the best talent who value work-life balance.

• *The STAR Lab*

Working towards a caring, resilient and high performing culture, the STAR (Sustainable Environment for Talent Attraction and Retention) Lab takes on the role of the glue that holds UTP together. Its primary goal is to come up with initiatives that will grow and nurture the staff of UTP, the university's most important asset.

First and foremost, it encourages and promotes self-value. Acknowledging that each and every staff member is a valuable asset to the university, one of STAR Lab's priorities is to regularly review the remuneration packages of existing personnel and to design attractive offers to attract international staff. This is to ensure that the team is happy working at UTP and to maintain and retain valuable manpower.

The university adopts a performance based promotion and reward system that is supported by flexible KPI assessments. To ensure that the working environment is conducive to research, and to accelerate and recognise passion, STAR Lab has introduced the flexi-hours initiative. It is also hard at work to ensure that everyone enjoys a good balance of work and off-work time, and is allowed space to grow and nurture their creativity and passion for work and life.

• *The FAST Lab*

In the FAST (Financial Agility for a Sustainable Tomorrow) Lab, UTP's academic offerings, business direction and financial management constantly go under the microscope. Covering five main domains – Academic, Research, Student Experience, Financial Management and Yayasan UTP – the FAST Lab's responsibility is to take UTP forward as a financially stable university of the future.

The people who contribute to and work within the FAST Lab are driven by the goal to position UTP as a forward moving institution, constantly keeping with the times and focusing on the core areas of its goals and targets.

In each of the five domains, various strategies are designed and formulated towards each individual value proposition. For example, the academic area focuses on offering market driven academic programmes with global learning experiences

and innovative education deliveries; student experience means having to create and maintain a vibrant campus environment that empowers and nourishes students; and financial management entails being accountable and investment-driven through cost optimisation and income maximisation.

• *The BRAND Lab*

Branding plays a very important role in the sustainability of an institution of higher learning – beyond the name, it is an identity, a reputation, a reflection of what the university stands for and upholds.

The BRAND Lab was formed to create a relevant, admirable and defensible brand for UTP. This is where the university's brand essence, brand promise, brand pillars and brand personality, as well as its shared values are redefined and refined. The Lab undertakes the planning of branding and positioning strategies to define UTP and what it aims to be.

• *The BE²ST Lab*

A university is not just a place where one attends lectures and classes and finally earns a degree. It is a whole ecosystem in itself and it is the focal point for the students for the duration of their respective programmes. As such, the university environment plays a crucial role in the holistic development of the student, from the academic, the social and the spiritual aspects.

This is where the BE²ST Lab comes in. Its goal is to develop an ecosystem to facilitate holistic student experiences and to ensure that they develop in all areas and ultimately graduate as Model Global Citizens. The Lab's key strategies include providing a value-based educational experience supported by a global outlook, optimising current academic practices and setting up technopreneurship initiatives.

It also looks into establishing a family/home system for the students and empowers and enriches students through the various activities made available to them.

"The ever-increasing demands on universities both in the areas of teaching and research, coupled with rising costs mean that financial sustainability will be a priority for universities today, and in the coming years. At UTP, we are cognisant of the importance of financial sustainability for the university's long term growth and stability, and in the achievement of its mission."

Hasbullah Haji Ihsan
Chief Financial Officer

• *The EXCEL Lab*

In the EXCEL (Excellence in Capability Enrichment & Lifelong Learning) Lab, UTP plans to tackle issues such as low visibility, low student intake and seamless postgraduate processes from the application to graduation stage, among others, and to position the university as a preferred partner in capability enrichment and lifelong learning. The EXCEL Lab encompasses seven domains namely, graduate attributes, distinguished programmes, conducive learning environment, processes and governance, excellent talent resources, programme sustainability, and global brand.

In each of these domains, various strategies are designed and formulated towards each value proposition individually. For example, for graduate attributes, strategies include developing an EXCEL model, engagement and recognition, enhancing postgraduate students' capabilities, and improving entry and graduation requirements. Under the global brand domain, UTP's aim to become a preferred partner will mean employing strategies such as distinctive market positioning, partnering with industry icons, and having a dedicated marketing unit for postgraduate programmes.

• *The ALMA Lab*

The ALMA (Alumni Management) Lab recognises the importance of UTP's alumni participation in the university's journey towards excellence. UTP alumni are one of the university's most important stakeholders, and they form an integral part of the university's ecosystem. As such, continuous engagement with the alumni is crucial, with the goal being to have a global alumni community that nurtures a culture of enrichment.

The ALMA Lab has come up with strategies clustered into four domains namely, culture of belonging, wealth creation, network and linkages, and sustainability. The strategies include among others, alumni governance and engagement, information channels and content, and the strengthening of professional relationships.

• *The LIGHTS Lab*

The goal of the LIGHTS (Lab Management Innovation for Growth and Holism Towards Sustainability) Lab is to review UTP's Lab Management operating model in view of the institution's journey towards becoming a premier university. The LIGHTS Lab addresses challenges faced by the lab management unit in managing additional requirements, operations and control of lab activities. It also seeks to ensure that resources for labs including assets, inventory, space and manpower are optimally and economically managed and utilised.

Seven key strategies have been proposed to achieve the Lab's proposition. These include becoming the partner of choice status for lab services, the establishment of high performing resources and competent staff, institutionalising effective asset and facilities management, developing laboratory resource and information management systems, implementing fast, demand-driven and seamless procurement, enhancing and strengthening lab management system and governance, and creating a culture of professionalism.

Within each strategy, the lab identifies the steps that need to be undertaken, for example in the establishment of high performing resources, the goal is to provide clear career progression, structured training programmes for competency development and the retention of talent by offering attractive rewards for technical staff.

"By positioning UTP as a global leader in technological education, we require expertise from all over the world. This is not only for the transfer of knowledge but also to mitigate the gaps that may be present in the local environment."

Zamri Yusof

Senior Manager, Human Resource Management & Administration

“We are at the top in terms of students’ achievements in sports, performing arts and extra curricular activities but as a progressive organisation, we need to constantly change and transform because the demands of students are increasing exponentially. So we need to be agile and adapt; the challenge is to push boundaries, and be ahead of the curve. To do this we need to ensure that everyone involved recognises that to be a leader, one has to embrace change and make it part of our lives.”

Mohamed Noor Rosli Baharom

Senior Manager, Centre of Graduate Studies, Deputy Vice Chancellor (Student Affairs & Alumni), UTP, 2010–2016

Closer ties with industry

From the onset UTP has been committed to fostering collaborations and partnerships with industry, and that has been one of the university's unique features. Still, there are areas that can be improved. UTP Pro Chancellor Datuk Wan Zulkiflee Wan Ariffin believes that the university needs to strengthen industry support by conducting deeper research with other international oil companies. Wan Zulkiflee, who is the President and Group CEO of PETRONAS, adds that UTP needs to be more resourceful in collaborating and identifying the required fundamental research to support technology that can be commercialised. "By leveraging on PETRONAS' expertise to form the right partnerships, they will be able to maintain the stamina to push for commercialisation," he adds.

Abdul Rahim would like to see academic staff go on sabbatical or stints at private organisations, and generally foster closer ties with industry. "More should also be involved in associations and societies and engage with members of their professional fraternity so that their profile is raised and they contribute to their fraternities. When our academic staff become more recognised for their area of expertise and are more connected with the industry, then it becomes easier for industry-academic relationship to flourish," says Abdul Rahim.

Deputy Vice Chancellor (Research & Innovation) Professor Ir Dr Ahmad Fadzil Mohamad Hani says that more academic staff should be encouraged to serve as consultants or directors of companies. "If we can grow these numbers then the university can have strong linkages and more activities with industry," he says.

Professor Dr Abdul Rashid Abd Aziz, Head, Centre for Automotive Research and Electric Mobility, believes that it's important to bring UTP into the fold of government agencies. "At present, UTP does not have many representatives at the government agencies. For example, at the Ministry of Education there are many heads and directors who are seconded from the public universities. As a result, we are somewhat handicapped and sometimes policies are developed for universities and we are the last to know," he says, adding that academic staff should be more involved in various government committees or advisory panels, and should work to influence the policy makers.

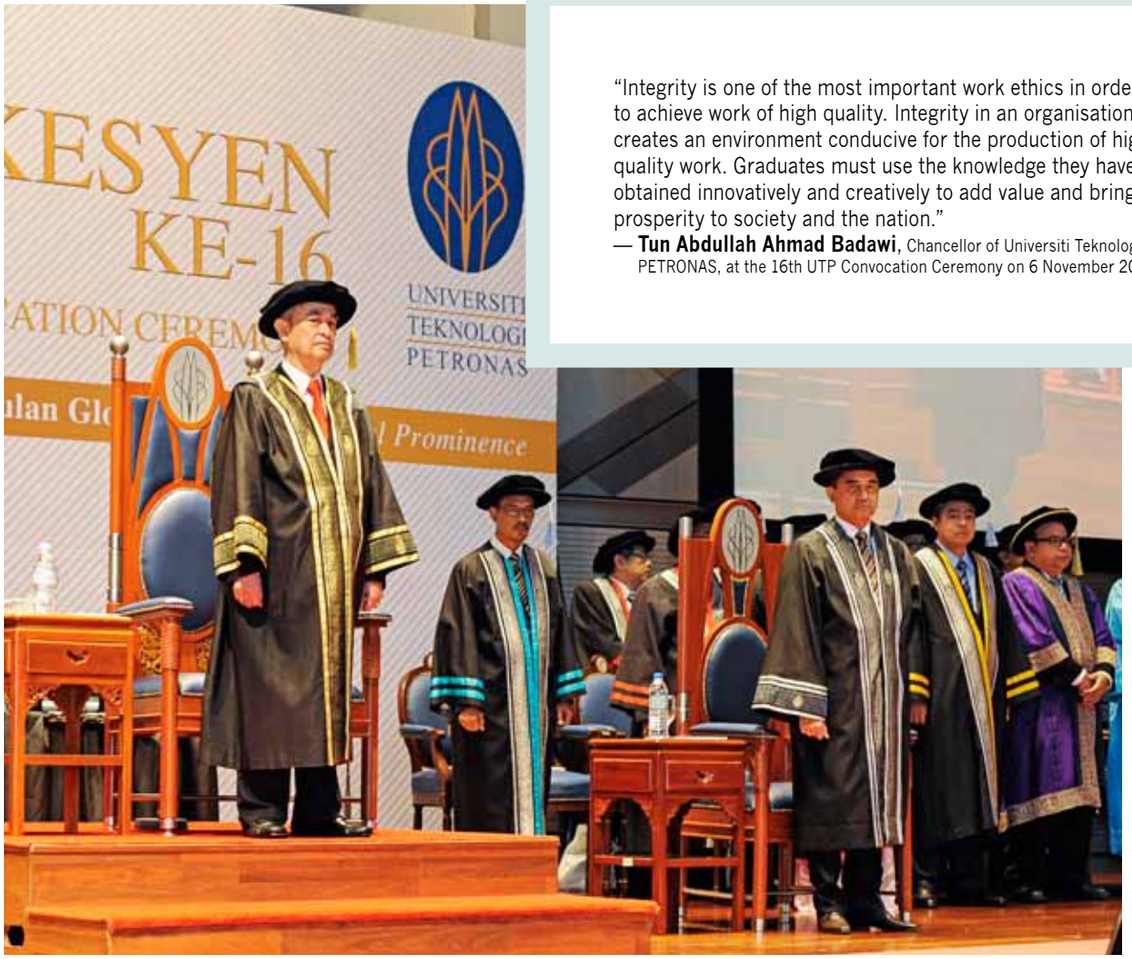
"We are now at the crossroads. We have just completed the first phase of our transformation and there are many more phases to go. The next 10 years will be very critical for us if we want to be in the Top 100 in the world because we have to triple or quadruple our output in terms of securing the funding, publishing research works, collaboration. We cannot afford to remain in our current state and there has to be a paradigm shift in the way we work in UTP"

Professor Dr Abdul Rashid Abd Aziz

Deputy Vice Chancellor (Research & Innovation), UTP, 2009–2016 and Head Centre for Automotive Research & Electric Mobility

UTP's Centre of Innovative Nanostructure and Nanodevices studies and develops beneficial products in energy, environment and electronics.

A Word From The Chancellor



"Integrity is one of the most important work ethics in order to achieve work of high quality. Integrity in an organisation creates an environment conducive for the production of high quality work. Graduates must use the knowledge they have obtained innovatively and creatively to add value and bring prosperity to society and the nation."

— **Tun Abdullah Ahmad Badawi**, Chancellor of Universiti Teknologi PETRONAS, at the 16th UTP Convocation Ceremony on 6 November 2016

Harnessing the team

The successes achieved to date are the result of the groundwork carried out by the university pioneers. The question now is how to manage that success and ensure that it is sustainable in the years to come.

The answers lie in the people and the team at UTP.

Talent management, whether it is retaining existing talent or attracting new ones to the university is an area of critical importance to UTP. In 2016 UTP set up a talent sourcing unit within the human resource department, and its role according to manager M Khalid Ka'ab is to ensure that the university attracts the right people. The unit, which is developing a framework to ensure that the right processes are in place to recruit talent, takes four factors into consideration when sourcing for talent.

"We're looking at the profile of people – are they innovators, expediters or planners? With this we can then chart their career progression and match it with the university's needs. We look at competency and potential. For example, are they Vice Chancellor or Deputy Vice Chancellor material? And finally we look at their development," explains Khalid.

As UTP embarks on the next phase of its growth journey, the university's leadership is cognisant of the fact that its people will play a critical role. The university today has a staff strength of 979, and of this, 407 are academic staff.

"The organisation has grown over the years, so the question is how do we ensure a high level of performance from all quarters? The success of any organisation lies in its people whether it's the academic or support staff, so we need to look at how we can develop them accordingly and ensure that everyone can contribute towards the university's goals.

"We don't want a situation of 20% of the staff contributing towards 80% of the achievements but rather that 80%, if not all, contribute to the organisation. And if we are successful in this then our achievements become more credible and sustainable," says Abdul Rahim.

Teamwork and concerted effort are certainly the buzzwords for UTP's journey ahead. In the same way that the university's pioneers built and developed UTP from scratch, improving on the current success and attaining global prominence requires passion, commitment and enthusiasm from all quarters. The university is confident that the team has the wherewithal to rise to the challenges ahead, and take UTP to the next level – cementing its position as a leader in technology education and a centre for creativity and innovation.

"The university cannot sit back and depend solely on PETRONAS. It has to secure funding from other sources, enhance industrial collaboration and commercialise its research. Achieving these would get UTP to its goal to become an internationally recognised partner of choice for industry and respected scientific community by the year 2025."

Juniwati Rahmat Hussin

Member, Board of Trustees Yayasan UTP, 2010–present,
Chairman, ITPSB, 2010–2013,
Vice President, Education, PETRONAS, 2009–2010 and
Vice President, Human Resource Management, PETRONAS, 2010–2012

Left
M Khalid Ka'ab

A UNIVERSITY FOR ALL TIME

When Datuk Ir Abdul Rahim Hashim was approached to take on the role of Vice Chancellor of Universiti Teknologi PETRONAS (UTP) it was an opportunity he could not turn down. “The area of people development has always been my focus even in my early years at PETRONAS. I felt that this was something that I could contribute.”

Throughout his 32-year career with the national oil corporation, Abdul Rahim served as CEO of PETRONAS Oil Refinery Malacca, Vice President of Group Human Resources, Gas Business and Research & Technology. He contributed his expertise and leadership to the oil and gas fraternity – serving as president of the Malaysian Gas Association and president of the International Gas Union.

Although he assumed the mantle of Vice Chancellor in November 2012, Abdul Rahim was no stranger to UTP, having served as a member of the steering committee responsible for establishing the university.

As Vice Chancellor, his priority was to continue the work of his predecessors and further strengthen the foundations they had laid. “I knew that we were heading into a steep phase of the university’s development. We were eyeing research university status, aiming for Tier 6 rating for the quality of teaching and learning, and we wanted to be ranked and rated accordingly. So there were targets to be achieved,” he says.

He put his decades of experience in the oil and gas industry, as well as his extensive industry network to good use – advancing on the earlier successes and driving the UTP team further.

Some four years on, UTP has garnered an impressive tally of awards and recognition, both nationally and globally. On the international front, in October 2016 Abdul Rahim accepted the William Pitt Fellowship on behalf of UTP from Pembroke College of Cambridge – the first Malaysian representing a university to be admitted into this esteemed group. But Abdul Rahim, though pleased with the university’s achievements, believes that the finish line isn’t yet within grasp. “Targets are basically works in progress. The issue now is getting everyone on board as we continue our journey.”

The next milestone for UTP is to achieve global prominence by 2025, expressed in terms of being among the leaders of technology education and to be a driving force of research.

“The vision and mission of the university has not changed – we want to ensure that we are a centre for creating and disseminating new knowledge,” he says, adding that he would also like to see more meaningful collaboration between the university and industry.

“The focus ahead is to get everyone aligned to our objectives, and for everyone to be focused and committed to those objectives. We want to be moving in unison so that when the university achieves its goals, it is the result of everyone’s contributions,” he adds.

TRANSFORMATIONAL YEARS

1997 - 2017

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20 TRANSFORMATIONAL YEARS 1997 – 2017
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