

ENGINEERUS

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POLYTECHNIC

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Temasek
Engineering School
where the future happens

INTEGRATED PROGRAMME FOR 'N' LEVEL STUDENTS

A Polytechnic Foundation Programme (PFP) will be introduced for 'N' level school leavers who want a polytechnic education, similar to the Integrated Programme for Sec 1 & 3 students who will skip their 'O' levels.

What is the PFP?

The Polytechnic Foundation Programme (PFP) is a through-train programme which allows Sec 4 Normal Academic (4NA) students who have performed well in the GCE 'N' level exams to skip Sec 5 and proceed directly to a polytechnic without taking their 'O' levels.

4N(A) school leavers can choose the diploma and polytechnic that they want. They then do a one-year foundation course at that polytechnic, before starting on their 3-year diploma course.

Results of the foundation course will have no bearing on their actual 3-year diploma course, which means students start on a clean slate. And when they graduate, they will get the same diploma as their other mainstream peers.

The first intake will be in April 2013, for students sitting for their 'N' level exams in 2012. Each polytechnic will be taking in 240 students. This will be increased to 360 students per polytechnic in 2015.

Benefits

This new scheme allows 4N(A) school leavers to "lock-in" the diploma course that they want. As long as they pass their one-year foundation course at the polytechnic, they are guaranteed a place in that diploma.

PFP students also have time to adapt to poly life during their one-year foundation programme, so that they are more ready to begin their actual diploma course.



Polytechnic education offers practice-oriented training that is highly valued by employers today



Who can apply?

This scheme is open to 4N(A) students who get an aggregate of at least 11 (for English, Maths and any 3 best subjects) at the 'N' level exams. In addition, they generally also need to score at least a B3 for specified relevant subjects.

Curriculum

The foundation course content will be similar to what students learn in Sec 5. In addition, there will be subjects such as Research & Reasoning, Personal Development & Effectiveness, as well as Fitness & Wellness (similar to Physical Education lessons).

Is it reversible?

PFP students who change their minds mid-way through the foundation course, or who do not manage to pass the course, can still go back to Sec 5 to pursue their 'O' levels. They can return to their former secondary school, subject to acceptance by the Principal.

How to apply?

After the 'N' level exams results are released (usually in the 3rd week of December), eligible 4N(A) students will receive an application form, which must be submitted by the end of December.

Will 4N(A) students do well at Poly?

Based on track record, N(A) students usually do very well at Temasek Polytechnic. About 16.9% of N(A) students admitted in April 2011 chalked up a Grade Point Average (GPA) of 3.5 or better in their first semester (compared to 23.7% for Express stream students).

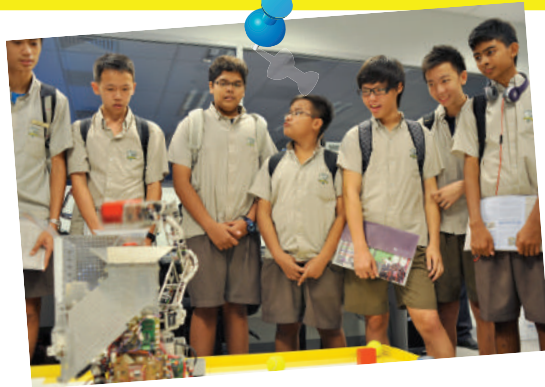
COME & BE ENRICHED

To help enrich the education of youths, our School of Engineering offers customised workshops and educational tours for secondary school students.

One such visit was arranged for about 120 students from Bedok Green Sec School on 12 & 13 Sep '11. Participants experienced flying an aircraft using a flight simulator, immersed themselves in the world of 3D simulation at the Interactive Digital Centre Asia (IDC Asia) on campus, and played with intelligent robots at the Robotics & Automation Centre, among others.

The School of Engineering also conducts Physics tutorials on 'O' level topics, a Maths Seminar and customised workshops upon request.

For enquiries on these complimentary activities, please contact Ms Low San San (sansan@tp.edu.sg / 6780-5426).



JOIN US THRU THE DPA!



The Direct Polytechnic Admission (DPA) exercise in July each year allows 'O' level students to secure a place in the diploma course that they want, before even taking their 'O' level exams. Selection is based on a student's abilities, talents and aptitude, as well as their academic performance at their secondary school.

Applicants need only ensure that they do not exceed an aggregate of 26 points (for English, 2 relevant subjects, and 2 other best subjects) at their 'O' level exams that year.

This year, about 150 'O' level students attended Temasek Polytechnic's Engineering School Orientation for Direct Polytechnic Admission (DPA) applicants on 23 July '11. They were briefed on what to expect at the DPA selection interview and given a facilities tour.

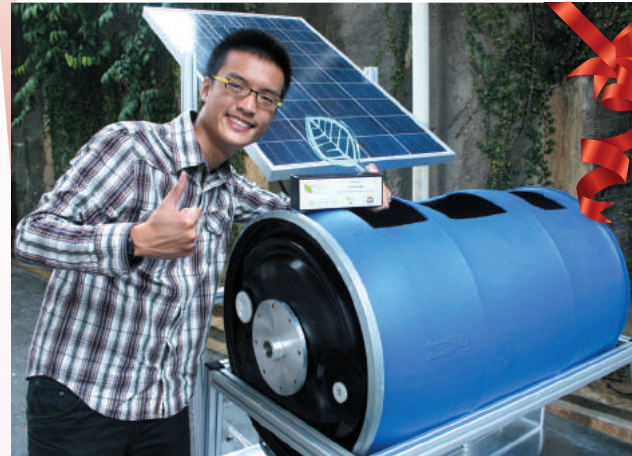


A final year student from the Diploma in Clean Energy, Lim Yu Ke, has been conferred the title of Bayer Young Environmental Envoy 2011.

He was selected based on his invention of a “Solar Driven Neighbourhood Compost Tumbler”. The device has been implemented at the Kampung Senang organic farm in Tampines, enabling the farm to recycle the solid waste from their farm into useful compost in a sustainable way.

The former Dunman Sec School student received his award from Dr Amy Khor, Minister of State (Health), at a presentation ceremony held on 16 Sep '11. As part of his prize, he joined fellow envoys from around the world on an all-expenses-paid educational trip to Germany, from 15 – 22 Oct '11.

Sustainable invention



Yu Ke with his award-winning invention



BEFORE... and AFTER

No more shocks for patients undergoing facial surgery. They can now see what they will look like post-surgery, thanks to a unique application invented by 3 students from the Diploma in 3D Interactive Media Technology.

The application, “3D Modelling of Characteristic Human Facial Features”, allows patients to virtually see themselves with different facial features, and is useful for those contemplating plastic surgery.

The students’ invention snatched 2nd prize in the inaugural 3D Face App competition, held on 1 Nov '11.



Team Le Masque (from left): Felicia, Jessica and Jade, with their supervisors

MAKE THIS APP YOUR BUDDY

Motorists, don’t leave home without this App, the “SG Driver Buddy”. It is a mobile phone application that provides the latest information on road conditions – traffic jams, accidents, and of course, floods – as well as live snapshots of highways.

The application, developed by a student from the Diploma in Computer Engineering, runs on Windows phones. It won the “Most Innovative Award” in the Windows Phone Ninja competition held from 20 Aug – 12 Sep '11.



Nirmalkumar, brandishing his prize, with his supervisor

HOW TO REDUCE YOUR UTILITIES BILL



The energy savers (clockwise from front): Joanna, Zhi Cong, Sandra and Zhang Xiang, with their supervisors

Do you know that leaving your Starhub or Mio set top box on standby mode even when you are not watching TV, still consumes up to 20% of electricity?

Now here's a device to solve the problem: The "Standby Energy Saver", developed by 4 students from the Diploma in Clean Energy, is a power adaptor that will automatically shut off the mains if the appliance is left in idle ("stand-by") mode for a specified time. In order to switch the appliance on again, the user must activate a switch to reset the device.

Compatible with any appliance in the home, this novel invention clinched the 3rd prize (\$1,000 cash) in the tertiary category of the National Climate Change Competition held on 2 Sep '11.



The winning team (starting 2nd from left): Benjamin, Xue Yuan and Javier, with supporters and their lecturers

Imagine the huge amount of energy that is dissipated by the jet blast from an aircraft engine, especially during takeoff. This is useful energy that should not be wasted.

Realising this, 3 students from the Diploma in Aviation Management & Services found a way to harness this potential energy using specially designed wind turbines.

Their ingenious proposal, entitled "Jet Blast Energy Recovery System" earned them the Gold medal in the annual Create Tomorrow Challenge held on 30 Sep '11.

The students and their coach won a trip to Paris and Toulouse.

BLASTING THEIR WAY TO VICTORY



Having a blast at the Arc de Triomphe monument in Paris

SLEEPLESS IN SINGAPORE



Wondering where to go for the weekends? Let “OneStop-SG”, a new iPhone App, help you!

You can choose from various pre-planned routes, each covering different places of interest in Singapore, and get information about each attraction, its opening hours, as well as any activities being held there. Eating places along the route are incorporated too, so that you’ll have a wholesome day’s outing!

The brainchild of 4 students from the Diploma in Business Process & Systems Engineering, this App concept won 2 awards at the annual SLA Spatial Challenge held on 27 July ’11 – the Potential Business Product Prize, and the Eureka! Prize, each worth \$500.



Ensuring that you’ll be thrilled in Singapore are (from left): Anson, Si Ning, Koon Hiang and Zi Shen, with their supervisor

I HAVE A DREAM...

Once upon a time, 3 girls sat down and toyed with the idea of making a million dollars by setting up their own business. It started as a wild dream, but today, they are well on their way to achieving their goal.

The students, who are from the Diploma in Business Process & Systems Engineering (BZE), had noticed more elderly people around, and knew there was a market for Singapore’s greying population. So they set up a company, Sorgen Pte Ltd, to commercialise their specially modified rehabilitative devices for the aged, working closely with welfare homes, rehabilitation centres and hospitals.

Giving their dream a boost is \$100,000 in seed funding which they received when they won the Ideas.Inc Business Challenge held on 15 Oct ’11. They also took home the “Most Innovative Start Up” award and \$10,000 cash.

Team leader, Serene Tan, said: “Our BZE diploma’s distinct curriculum taught us how to analyse, enhance and integrate business ideas, and we’re glad that theory has become reality for us!”

Caring for the elderly with their unique inventions are (from left): Serene, Qi Shan and Rita, with their supervisor



WE ARE 20!

To celebrate the School's **20th** Anniversary, Engineering staff and students organised a week-long birthday bash (21 – 25 Nov '11). **ENGINEERRUS** checks out the festivities...



The week was filled with games, competitions, song dedications, and even a feast for the eyes, as Hello Kitty, Spiderman, Aladdin, Super Mario and even Harry Potter made their appearance on the red carpet.

Spectators were treated to an extravaganza of colours, as each diploma club put up a dance item, turning the concourse into a temporary concert hall.

That same day, the School got into Singapore Book of Records for the most number of people (300) doing cupid shuffle, a mass dance.

Two days later, 1,460 staff and students gathered at the sports hall to set another record for the most number of people doing jumping jack (whew!)

Then, to replace the lost energy, free lollipops were distributed, and everyone sucked on it for 3 minutes, getting the School into the Singapore Book of Records yet again, this time for the most lollipop eaters – 1,530 people.

The week of celebrations ended with probably another unofficial record – a massive buffet dinner for thousands at a single venue!



20 YEARS OF DYNAMIC TRANSFORMATION

The School of Engineering was set up in 1990 under the School of Science & Technology at the Stirling Road campus, before moving to the Grange Road campus a few months later.

However, the first batch of students enrolled only in 1991, hence the 20th anniversary celebrations in 2011. Starting with only 7 staff and 2 diplomas (Mechatronics and Electronics) with 80 students each, the School now has about 400 staff and more than 5,000 students.



The early days at Grange Road



Graduation ceremonies of yesteryear



Phase 3 topping up ceremony, 1998



"Family" portrait to mark TP's 10th Anniversary, taken in 2001



Launching of the School of Engineering's tagline, "Where the Future Happens", 2001



SARS, 2003



H1N1, 2009

Engineering students thru the years....



"As we take stock of our progress through the years, we realise we have come a long way – not just in terms of student and staff numbers, but also in terms of our facilities, technology and competency."

– Mrs Lay-Tan Siok Lie
Deputy Principal &
Director, School of Engineering

BUSINESS FOR CHARITY

Engineering students turned entrepreneurs for a day on 18 Nov '11, setting up pasar malam stall selling food and accessories, and offering services such as henna painting, face tattoo and manicure – all in the name of charity.

A total of \$28,801.84 was raised for the Campus Care Network (CCN) fund to help needy students in the Polytechnic. Engineering School's contribution amounted to \$10,001.75, or 35% of the total collection.



– Photos by Divya Mathani, Sarayutt Koh & Johan Ng

PROJECT RUNWAY

Aerospace and aviation students @TP will be able to attend flying lessons at the Singapore Youth Flying Club (SYFC) at Seletar Airport, as well as the Oxford Aviation Academy (OAA) in Melbourne, Australia during the final year of their diploma course. If they pass, they can obtain a Private Pilot Licence.

The flight training is offered to suitable students from our Diploma in Aviation Management & Services (AMS), Diploma in Aerospace Engineering, and Diploma in Aerospace Electronics. Students pay only a nominal fee for the training, whereas the market rate for a flying course is about \$30,000.

This special arrangement was made possible by a Memorandum of Understanding signed with OAA and SYFC on 6 Dec '11 and 3 Jan '12, respectively.



AMS students (from left) Kenneth, Marcus, Benjamin and Ryan checking out the single-engine Diamond DA-40 aircraft used for flying lessons at SYFC

A DAY IN THE LIFE OF A TELECOMS ENGINEER

Eight final year Engineering students were attached to Orange Business Services, a French telecommunications company in Chai Chee Technology Park, and assigned a female mentor on 19 Oct '11 under a shadowing programme for female tertiary students. One of them, Carina Hu, reports.

By Carina Hu (MET)

I was paired with Ms Emily Ho, Orange's HR Manager of ASEAN. From her, I learnt a lot about working life and also got valuable advice that would be useful when I step into the world of work in half a year's time!

After being shown around the various departments, we had a live video conferencing session with 2 female employees from the Human Resource office in Sydney. Although we were sitting in different time zones thousands of miles apart, it felt as if we were in the same room talking!

We then had a tour of the data centre, where all the hubs and switches are. I was amazed at how they managed to bundle up those messy wires so neatly and systematically.



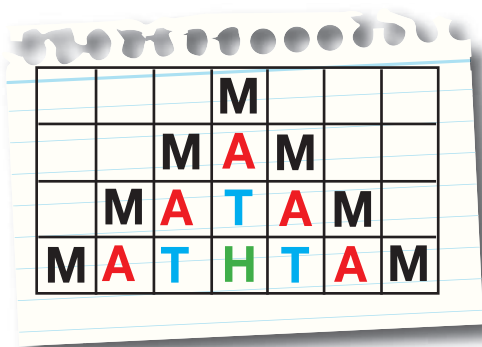
Carina (3rd from right) with fellow Engineering students and their mentors at Orange

Finally, what caught my attention was the integrated work environment where the different departments worked seamlessly together.

Overall, it was a one-day wonder. But it would be better if this Shadowing Day is more than a day, as good things always seem too short.

FIGURE IT OUT...

and win yourself a limited edition thumb-drive!



The word **MATH** when arranged in a pyramid can be formed in 15 ways going from top to bottom, bottom to top, left to right, right to left, or any combination thereof.

In how many ways can you form the word MATHEMATICS when arranged in a similar pyramid? This contest is open to secondary school and ITE students only.

Email your answer, with name, school, and HP number, to: cheeseng@tp.edu.sg with the subject title, "Engineerrus Maths Puzzle 2".

The first 10 correct entries drawn after the closing date (1 June 2012) will each win a limited edition hand-crafted wooden thumb-drive.

ANSWER TO QUIZ#1

Two trials are required.

Randomly take six slabs and put 3 on each side of the balancing scale.

- If the 6 slabs are balanced, a further weighing of the remaining 2 slabs should reveal the lighter one.
- If the 6 slabs be unbalanced, take any two from the lighter side and weigh them. If they are balanced, then the remaining unweighed slab is the 19g slab by default. If they are not balanced, the lighter slab has revealed itself.

Winners:

Reuben Lim (AMK), Hong Jim (Bedok Town), Lo Ho Chuen, Jonathan Cheng (Dunman Sec), Lim Meng Hwee (Evergreen), Wen Qiao (Jurong), Tuieng Ren Jie (Nan Hua), Kevin Chan (Orchid Park), Chew Jun Hong (Zhenghua)

Welcome Freshies...

More than a hundred students attended the Orientation for Freshies of the October intake, held on 20 & 21 Oct '11.

WARMTH AMONG STRANGERS IN THE COLD

By Sarayutt Koh (AMS)

Sarayutt Koh was one of 42 Engineering students who embarked on a study trip to Japan (28 Sep – 4 Oct '11). He explains why the trip left such a deep impression on him.



Sarayutt (in jacket & tie) with fellow Engineering students and the yatai chef (extreme right)

Dining with strangers can be quite unpleasant – no one to smile to and no one to talk to. However, during a trip to Kyushu, Japan, I realised that dining with strangers can sometimes beat dining with friends in Singapore!

The Japanese, even strangers, are such warm and friendly people. During one of our free and easy nights, we visited a 'yatai' (Japanese roadside stall) on the streets of Fukuoka City. As we entered, I was taken aback by the Japanese's friendliness. The chef, waiters, and even customers greeted us! I observed the people streaming in and out of the little, cosy stall, and everyone seemed to know each other. Before long, we were deep in conversation with some fellow customers, despite our broken Japanese. I noticed this similar warm hospitality during my farm-stay with a family in Gokase town, and also when we visited the Ritsumeikan Asia Pacific University and the Fukuoka Disaster Prevention Centre.

But it was the charm of the yatai on that wintry night, which still warms my heart till this day.



Engineering students visiting the Takachiho Gorge in Miyazaki Prefecture

LABOUR *for* A GOOD CAUSE



About 90 Engineering students from LIFE (Love Initiative From Engine), a community interest group in the School of Engineering, played Karang Guni (rag-and-bone-person) for a day, collecting recycled items from residents in 40 HDB blocks opposite the Temasek Poly campus on 24 Sep '11.

A total of 30 tonnes of recycled items comprising newspapers, books, magazines, and used clothing was collected on that day, with the funds raised going to needy students living in Tampines.



THE NEXT **BIG** THING: *FUTURE MEDIA*

Students of Temasek Polytechnic can now get news coverage, latest announcements and other real time information via interactive displays on about 50 LED panels splashed across the campus.

A huge 10m x 6m video wall at the Plaza also screens multimedia and creative works produced by the various schools and departments.

This follows an agreement between Temasek Polytechnic and Panasonic to develop an iDigital Campus.

Concurrently, the Polytechnic is also working with the Media Development Authority to promote the iDigital Campus as a "Future Media Co-Space Test-bed", to provide test-bedding services for the industry and to encourage innovation in future media.

Engineering students are set to benefit, as they work with our industry partners and serve as test-users for this project.



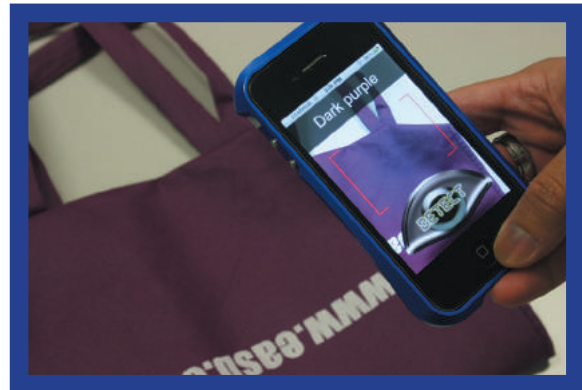


The visually impaired as well as those with poor vision now have a handy companion that promises to serve as their “third eye”.

A series of iPhone applications, developed by students from the Diploma in Media & Communication Technology, in collaboration with the Singapore Association for the Visually Handicapped, will help the visually impaired to lead a more independent and meaningful life.

Colour Reader

This iPhone App is able to read the colour of any object, and broadcast it aloud to the user. Pre-programmed into the App are 100 different colours, each with a unique name such as red-orange, dark purple, or light pink. The user just needs to scan the object using the iPhone's camera, and the colour will be announced aloud. If an exact match is not found, the program will use the next nearest colour, which would still be fairly accurate because of the large number of colours in the database.



Currency Detector

The visually handicapped need not worry about getting cheated, thanks to this App which can announce to them the value of dollar-notes. It works by detecting the pattern including the numeral on each note. The App only works for Sing-dollar notes, but can also be calibrated to read foreign currency.

Text Reader

This App is able to capture the image of the text, enhance its contrast and visibility, and display it on the screen in real time. The contrast and colour saturation can be adjusted to suit each person's eye, by simply sliding one's finger up or down the screen. A specially designed iPhone trolley allows users to glide the phone across the page. The user can also choose to activate the Optical Character Recognition (OCR) function, and have the text read out aloud.



STRIVING FOR GOLD

Six years after graduating from Temasek Polytechnic with a Diploma in Microelectronics, **Poh Zhi Ning** still thinks fondly of her Poly days when she would don the white smock to enter the Class-100 cleanroom. She recalls: “Only Microelectronics students were allowed to enter the cleanroom, and I always looked forward to it.”

The 28-year-old former student of Tampines Sec School is a member of national women’s water polo team which shot to fame after clinching gold at the SEA Games in Palembang, Indonesia (10 – 20 Nov ’11).

When the competition neared, Zhi Ning had to balance strenuous daily training with a full time job as an Office Manager at a wine investment company. “I don’t let small set-backs deter me from my long term goals,” she declares emphatically.

How did you end up in the national water polo team?

I started competitive swimming when I was 8, but I soon got bored. So I started playing water polo. In 1999, a few friends and I formed an unofficial women’s water polo team, which slowly grew in size and strength. After women’s water polo was introduced at the Olympics and Asian Games in 2000, we decided to get down to some serious training to don national colours.

What was the secret of your team’s success?

Perseverance. Over the years of playing together, we gained a wealth of experience through international competitions, although we never won any medals. Our coach also made sure that we had ample preparation in terms of fitness, skill and strategies.

Any advice for our readers?

In life, like in water polo, you have to work hard individually, and also work well as a team. Only then will you achieve the elusive gold medal, the goal in your life.



The Singapore national women’s water polo team



Flashback: Zhi Ning (extreme right) on her graduation day in 2006



In action against Hong Kong in the All China League 2011

HIPING SLOWDOWN EXPECTED in 2012

Brace yourselves for a tough year ahead. Employers are expected to slow their hiring in 2012 and more companies may retrench, as the effects of the debt crisis in Europe filter down to Asia.

A survey* of 626 employers by US-based recruitment firm, Manpower, found that 5% of companies plan to cut staffing levels in the first quarter (1Q) of 2012, compared to 2% for 4Q 2011.

Where are the jobs?

The survey uses a benchmark “net employment outlook”, which is the percentage of bosses who plan to hire, minus those who may fire. This means, the higher the figure, the better the prospects will be for that sector.

Using this benchmark, the survey found that the best job prospects will be in the civil service and education sector, with a net employment outlook of 26%. This is followed by finance & real estate (25%), services (24%), transportation & utilities (21%), manufacturing (19%) and retail (5%).

*The Straits Times, 13 Dec 2011, p. A4



Polytechnic diploma holders, valued for their practical skills, adaptability and resourcefulness, are expected to be sought after by employers even in a weaker economic climate

TEMASEK SCHOOL OF ENGINEERING DIPLOMA COURSES / PROGRAMMES

- ▶ 3D Interactive Media Technology
- ▶ Aerospace Electronics
- ▶ Aerospace Engineering
- ▶ Aviation Management & Services
- ▶ Biomedical Informatics & Engineering
- ▶ Business Process & Systems Engineering
- ▶ Clean Energy
- ▶ Computer Engineering
- ▶ Electronics
- ▶ Green Building & Sustainability
- ▶ Infocomm & Network Engineering
- ▶ Integrated Facility Management
- ▶ Mechatronics
- ▶ Media & Communication Technology
- ▶ Microelectronics

SPECIAL PROGRAMMES

- ▶ Common Engineering Programme
- ▶ Electrical & Electronic Engineering Programme
- ▶ Mechatronics & Aerospace Programme

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