

# ENGINEERUS

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 **Temasek**  
POLYTECHNIC



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# EDUCATION Spotlight

Being prepared is the best insurance against failure. Today, this rings true especially in formal education.

Are you prepared for what lies ahead in the next stage of your education?



Li Ting and Shi En, with their UPP Maths lecturers

Final year Engineering student, Tan Li Ting, intends to pursue a university degree after graduating from Temasek Polytechnic (TP) in May 2013. But she was worried about whether she could cope.

"I was worried that by the time I enter university, I might have forgotten some of the Maths concepts which I learnt," she shared.

Li Ting, from the Diploma in Clean Energy, was among the first batch of students who took up the University Preparatory Programme (UPP) in Mathematics, conducted by TP's School of Engineering. And she has no regrets.

"The UPP in Mathematics has not only helped me to revise many of the topics which I learnt earlier, but it has also taught me more advanced concepts beyond my Maths curriculum at Poly," she explained.

"I now have a better idea of the challenges I will face at university," she added.

## UNIVERSITY PREPARATORY PROGRAMME @ TP

The University Preparatory Programme (UPP) is a specialised course offered by Temasek Polytechnic to strengthen students' foundation and smoothen their transition from polytechnic to university.

There are 4 modules which can be taken separately: Foundation Mathematics, Mathematics, Physics or Chemistry. Each 48-hour module runs for 6 weeks and

students who complete each module will be awarded a certificate which can earn them credits or exemptions in their first year at university.

The UPP is also offered to the public at a cost of \$390 per module, with former TP students getting a 10% discount. Current TP students only pay \$107.

In addition, those who have taken the UPP while they are TP students and sign up for a Refresher Course within 3 years after graduating from TP, get a special rate of \$50 per module.

An alumni member who took up the UPP in Mathematics was Lum Shi En, who graduated with a Diploma in Mechatronics in May 2011.

"The UPP has given me more confidence in my ability and I now feel more prepared in Maths," said the 28-year-old former ITE student. "For alumni members, \$351 is a small premium to pay for a more secure future," advised the former Tay Eng Soon Gold Medal winner.

Asked for his take on the UPP course, he explained: "Each week, there was a different teacher, and each of them shared their specialty and passion in a Maths topic. Some of that passion has rubbed off on me and I find that Maths is so much easier when it is enjoyed!" he declared.

With competition heating up for limited places at local universities, as well as higher expectation of employers today, perhaps it pays to be prepared.

As Li Ting advised, "It is better to start university preparation early".



At TP's School of Engineering, students get a wholesome education that prepares them well for university

# Thank You for Coming!!

We hosted various groups of secondary school students and teachers recently. Were you among them?

Engineering Week workshops - Ping Yi Sec School (18 Oct '12)



TP Sneak Preview - Geylang Methodist & Yuying Sec Schools (17 Oct '12)

Visit by Bedok Green Sec School teachers (14 Nov '12)



Visit by Temasek Sec School teachers (19 Dec '12)





*Newfound friends (clockwise from top left):  
Jin Ren, Derrine, Zi Xian and Desiree*

## BUDDIES FOR LIFE

As secondary school students, you will probably receive dozens of brochures and pamphlets from tertiary institutions informing you about your options in further studies.

But websites and brochures only provide factual information. Nothing beats getting a direct purposeful experience!

Chan Jin Ren and Zi Xian, Sec 3 students from Greendale Sec School, were among more than 60 students who participated in the annual Poly Attachment Programme run by the School of Engineering.

They went through lectures, tutorials, project work, and CCAs for an entire week, following the time-table of their “buddy” – a first year Engineering student.

Asked for his take on the programme, Jin Ren, who was attached to the Diploma in Integrated Facility Management, said: “I was able to get a first-hand taste of Poly life, and I like the pace of learning in a Poly.”

A vegetarian, Jin Ren also checked out the vegetarian food stalls in the School: “Not bad leh, quite a good variety,” he assessed.

His schoolmate, Zi Xian, who was also attached to the same diploma, noticed the different level of discipline in a Poly: “We don’t need to wear a uniform in Poly, and lecturers treat us as adults, they don’t breathe down our necks!”, she quipped.

Jin Ren and Zi Xian’s buddies, Derrine Ng and Desiree Ng, were sad to see their new found friends leave at the end of the programme: “I hope they join us after their ‘O’ levels – we’ll be in Year 3 by then, but we will be in the same School of Engineering!” she said excitedly.



*Checking out the campus canteen*



*Participants got the real taste!*

# OTHERS ARE PAIL BY COMPARISON



*Eliot, Cecelia and Vera, with their supervisor and award-winning pail*

A humble-looking plastic pail has earned 3 students the Bronze award and \$4,000 cash in the Greenwave Environmental Competition 2012.

But it's no ordinary pail. This specially modified pail is able to automatically flip over when it is empty, thereby allowing any traces of water to drip out. This will prevent mosquito breeding and hence curb the spread of mosquito-borne diseases such as dengue.

Invented by 3 students from the Diploma in Business Process & Systems Engineering (BZE), the pail comes with a spring mechanism, attached at the point where the handle joins the bucket, which prevents the pail from flipping over if there is a significant amount of water inside.



## BABY CHAIR PRAM

Another project, the "Baby Chair Pram", also developed by BZE students, earned a Commendation Award (with \$500 cash).

With this unique pram, parents do not need to lift their kids out of the pram and onto a baby chair when they dine at restaurants; they simply raise the seat of the pram to the desired height and lock it in place.

The competition was held on 1 Nov '12.



*Zephan, Grace and Eileen showing how their pram works*

## Singapore NetRiders & NetExcellence Challenge 2012



*Jia Jing (left) and Jeremy with their award*

# RIDING ON SUCCESS

With their superior networking skills, students Jeremy Jee and Lee Jia Jing won the Silver award in the NetRiders Challenge competition held on 20 Sep '12.

Lecturer Mr Loh Kah Yee clinched the Bronze in the NetExcellence Challenge, the equivalent competition for instructors.

"It was a tough contest, but our training at TP certainly prepared us well for it, said Jeremy, who is from the Diploma in Infocomm & Network Engineering.

Participants were required to use Cisco's Web 2.0 technologies in a series of simulation activities testing their knowledge and networking skills.

# THREE COOL STEPS TO SUCCESS

Have you noticed that older HDB flats come with a 3-step staircase at their flat entrance? Originally built to raise the units in order to ensure privacy for its occupants, this 3-step staircase has proven to be a hindrance for wheelchair-bound residents.

Realising this problem, 3 students from the Diploma in Green Building & Sustainability (GBS) invented a portable staircase, called the "i-Step-Up", which can be placed at the flat's doorway.

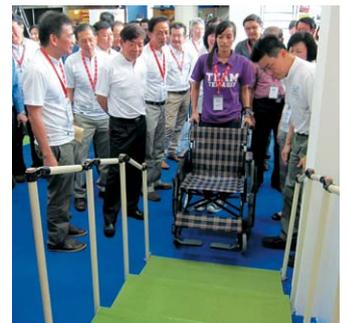
When a person stands on the portable staircase, the 4 gas springs underneath are compressed, causing the steps to flatten into a sloping ramp, thereby allowing a wheelchair-bound person to be wheeled up or down easily. When the person steps off, the ramp springs back into its original 3-step shape. Three



*GBS students (from left) Samuel, Nadia and Shing Yen with their cool idea*

hydraulic dampers slow the motion and reduce jerking during actuation, while nylon wheels under the steps ensure a perfectly smooth transition.

The invention won the Gold Award in the "Cool Ideas for Better HDB Living" competition held on 18 Aug '12. It was also declared the "People's Choice of the Year" when it secured the most public votes among 15 projects that were on display at an HDB exhibition held from 18 – 20 Aug '12.



*Presenting their idea to Minister Khaw Boon Wan and Minister of State Li Yi Shyan at the HDB exhibition*

## GREEN CHAMPIONS

Students from the Diploma in Green Building & Sustainability (GBS) demonstrated their superior knowledge among aspiring green professionals, when they made a clean sweep of the top 3 prizes at the Green Quiz 2012 – capturing the Gold, Silver & Bronze awards. In the process they beat about 20 other teams from local universities and other polytechnics.

The competition, organised by the Singapore Green Building Council, was held on the final day of the International Green Building Conference, held at the Sands Expo & Convention Centre on 2 Sep '12.



*The team from GBS*

# APP-SOLUTELY EXCITING

Bored this weekend? Let this unique App take you on an exciting tour around Singapore!

The “SG Walker”, an iPhone app which serves as a quick guide to explore Singapore on the move, provides suggested routes along which you can find places of interest. Background information and opening hours of each attraction, as well as eating places along the route are incorporated too, so that you’ll have a wholesome day’s outing!

An Augmented Reality (AR) function also allows you to access information about a particular attraction as well as promotions and discounts available, by pointing your mobile phone camera at the hotspot. You can also customise your own route by picking selected attractions, and the App will work out the ideal route for you!

Developed by 4 students from the Diploma in Business Process & Systems Engineering (BZE), the App concept won the Eureka Prize and \$1,000 cash at the annual SLA Spatial Challenge competition, held on 27 Jul '12. It was also declared the “most liked” project in the competition, based on Facebook votes by the public.



The App specialists from BZE



The “SG Walker” App

# HOME ALONE

If you have an elderly member at home, this Home Monitoring System is what you need!

The system allows a caregiver to monitor an elderly member remotely through a smart-phone and to be alerted via SMS if a “panic” button in the washroom is pressed or if the front door of the house is left open. In addition, a system using Microsoft Kinect allows the elderly person to view coming medical appointments, check the weather, video chat with friends and perform upper body exercises, all using hand gestures via a TV screen.

The application, developed by 3 students from the Diploma in Infocomm & Network Engineering (INE), clinched the Special Prize in the Code::Xtreme Apps, a 24-hour round-the-clock programming competition held on 27 & 28 Jul '12.



Victorious INE students (right to left) Calvin, Kai Siang and Jin Wei receiving their prize at a ceremony at NTU@one-north on 23 Aug '12

# NIGHT RIDER

Do you ride a bicycle? If so, then for your safety, it's best that you get this device installed on your bike!

Invented by 4 students from the Diploma in Business Process & Systems Engineering (BZE), this device is essentially an LED projector that you can mount on the back of your bike. When switched on, the projector will emit a powerful LED light onto the road, marking out a bright red 1.5m lane so that motorists can keep clear. At the same time, a green bicycle logo is superimposed on the road, to warn drivers that a cyclist is ahead.

Called the "Virtual Bicycle Lane", this invention was one of 3 projects from Temasek Poly which collectively clinched the Platinum Award, the highest prize in the annual YEA Innovation Fiesta Competition held at the Jurong Regional Library on 12 Nov '12.

This is the second consecutive year in which the Polytechnic has topped this competition – a testimony of the innovative spirit and creativity of its Engineering students.



## OUR ENVIRONMENTAL ENVOYS



Jun Song and Joanna receiving their awards from Dr Vivian Balakrishnan (Minister for Environment & Water Resources)

Do you usually discard laser-printed transparencies that you no longer need? Don't. You can wash off the laser-prints and reuse the transparency.

Koh Jun Song, from the Diploma in Clean Energy (CER) has found a way to recover used acetone solution from the Microelectronics lab through distillation, and then use the acetone to wash off the laser-print on transparencies to be reused.

Another CER student, Joanna Chew Yujiao, set up an online environmental portal, called "Kembangan Greenery Wiki Albums" for the residents of Kembangan (where she lives). The portal allows residents to learn about trees, shrubs, flowers and herbs in their neighbourhood.

For their environment friendly work, both CER students were conferred the prestigious Bayer Young Environmental Envoy award 2012. They received their awards at a ceremony held on 31 Aug '12.

# OH WHAT **FUND** WE HAD...

For the first time, TP's biannual Campus Care Network (CCN) Day carnival, held on 16 Nov '12, saw a special event called "Swim & Run", in which participating staff swam 50 laps and ran 70 times around the pool collectively, raising \$1,334 for the CCN fund.

Besides that, first year students also set up stalls selling food, clothing and accessories to raise funds for needy TP students. In all, \$32,094.88 was raised for needy TP students.



## GET YOURSELF **IPv6** CERTIFIED!

Heard of IPv6? Simply speaking, it's the new Internet Protocol version 6 which will eventually replace the old IPv4 and provide more Internet address space.

So get yourself an IPv6 certification to enhance your job prospects!

That's precisely what 319 TP Engineering students did. They attended a 3-hour training session conducted by Progreso Networks Pte Ltd and Temasek Polytechnic (TP) and obtained an IPv6 certification.

TP students who wish to attend this training, which is free, may register here: [www.tinyurl.com/IPv6Interest](http://www.tinyurl.com/IPv6Interest)



Certified Infocomm students (from left): Irfan, De Meng, Wardah, and Faez

# PARTNERS IN EDUCATION



At our School of Engineering, we believe in working closely with parents to ensure the best possible learning experience for our students.

Besides ensuring an open communication channel with parents throughout the year, the School also organises an annual "Meet the Parents" session.

About 500 parents of first year Engineering students attended one such meeting on 10 Nov '12, during which they met lecturers and course managers to find out about the academic performance of their children, and to discuss ways to help enhance their chances of success.

## A GREAT WAY TO FLY



*Staff from Temasek Polytechnic sealing the agreement with Senior Vice President Mr Marvin Tan and Senior Manager Melvyn Lim from SIA's Cabin Crew Division*

Engineering students will now have opportunities to do their internship with Singapore Airlines Ltd (SIA), as well as to attend pre-employment training programmes to gear them for a career as cabin crew with SIA. Suitable students may also be offered job opportunities in SIA after they complete their diploma.

These were made possible via a Memorandum of Understanding (MOU) signed between Temasek Polytechnic (TP) and SIA on 10 Dec '12.

Students, particularly those from the Diploma in Aviation Management & Services (AMS), will also benefit from study trips as well as an enhanced curriculum arising from knowledge sharing between TP and SIA.

This MOU follows similar earlier agreements with other carriers, under which AMS students get to do their student internship as cabin crew with Scoot Airlines and Tiger Airways.

# HEY MICKEY, YOU'RE SO FINE!



*Exposed: Jennifer without her costume*



*IFM student Kelyn Tan serving tourists as a Front Desk Receptionist*



*The IFM students celebrating the successful completion of their SIP at Disneyland*

Ever wondered whether it's a male or female behind that Mickey Mouse mask?

"Chances are, both Mickey and Minnie Mouse are played by females!" explained Jennifer Foo, a final year student from the Diploma in Integrated Facility Management (IFM).

She should know – she acted as Mickey Mouse for 16 weeks during her Student Internship Programme (SIP) at Disneyland, Florida, USA from 14 Mar to 9 Sep '12.

"Staff are selected to don costumes of Disney characters based on their height, not gender" explained Jennifer, who stands at 1.50m.

So yes, you can probably guess that Goofy is played by a male, while both Donald Duck and his girlfriend are also likely to be females – unless of course, the organisers can find a guy who's 1.50m short.

So how was it like acting as Mickey Mouse? "We had to go through rigorous training, during which we learnt about a character's traits and poses and how to sign autographs in the name of that character," recalled Jennifer. "It took me awhile to get used to signing autographs while wearing those bulky gloves!" she exclaimed.

Jennifer worked 6 hours a day, 5 days a week, and went to different locations each day – parks, parades, and restaurants too. "One thing I love about my job is that I don't have to wear a uniform, because what I wear cannot be seen!" she joked.

"I look forward to work every day because I can bring a smile to everyone's face, especially when I hug, kiss and cuddle little children. I hope I have created that Disney magic for them!" she reminisced.

Jennifer was among 12 IFM students who did their SIP in Disneyland. Her course-mates were assigned various other posts such as a Safety Instructor in the Disney Animal Kingdom, a Front Desk Receptionist, and a Crew at Cosmic Ray's Starlight Café.

# I BELIEVE I CAN FLY



Second year Aerospace Electronics student, Mohd Huzyer, fulfilled his dream of flying when he piloted a home-made aircraft off a 6-metre high ramp and into the air.

He was airborne for a good 5 seconds.

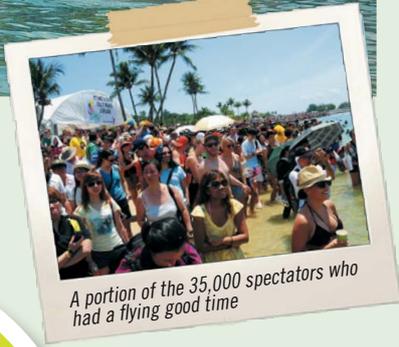
Huzyer was one of about a dozen students from the Diploma in Aerospace Engineering and Aerospace Electronics who took part in the inaugural Red Bull Flutag event held at Sentosa's Siloso Beach on 28 Oct '12.

The two teams from Temasek Poly were among 38 teams which put their human-powered flying craft to the test in an attempt to record the longest airborne flight.

Both aircraft from TP crashed into the water within seconds after take-off, but it was the experience which mattered.

– Photos by Concept35mm

Team Temasek's aircraft taking off



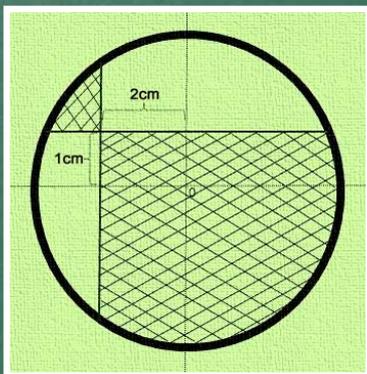
A portion of the 35,000 spectators who had a flying good time

## FIGURE IT OUT...

### AND WIN A LIMITED EDITION WOODEN THUMB-DRIVE



What is the resultant area if the unshaded area within the circle is subtracted from the shaded area?



This contest is open to secondary school and ITE students only. Email your answers, with name, school and HP number to: [cheeseng@tp.edu.sg](mailto:cheeseng@tp.edu.sg) with the subject title, "Engineerrus Maths Puzzle 4".

The first 10 correct entries drawn **after the closing date (1 June 2013)** will each win a limited edition hand-crafted wooden thumb-drive.

### ANSWER TO QUIZ #3

	2	9	7	8	6
+			8	5	0
+			8	5	0
	3	1	4	8	6

**Winners:**

Chan Shi Cong (Compassvale), Chiang Jun Siang (Pasir Ris), Dhinesh s/o Paramalingam (Naval Base), Lee Xue Ling (Nan Hua), Low Hui Xin (Outram), Mitchel Goh (Sch of Science & Tech), Regina Juliet Husin (Northland), Reka Putra Indera (Xinmin), Sherman Ng Zhen Yu (Hougang), Thike Tun Su (Sembawang), Kim Ji Hae (Fajar), Li Xiaowan (Tanjong Katong Girls'), Lam Do Thuy Uyen Ha (CHIJ Toa Payoh).

# OPERATION CLEAN UP



**Energy Oasis, the student club of the Diploma in Clean Energy, regularly organises community projects to help the less fortunate in society. At one such event last year, 5 members of the Club spent an afternoon restoring order to a widow's home.**

They were no professional cleaners, but 5 students from the Diploma in Clean Energy did an excellent job transforming a cluttered-up, junk-filled and untidy 3-room flat in Circuit Road, into a spacious, clean and comfortable apartment for its owner, Mdm P.

At the invitation of Assisi Hospice, which had looked after Mdm P's late husband, the CER students agreed to help. One of them, Valerie Teo, described what she saw: "The house was filled with so many things, there was hardly any space to walk. Household appliances were rusty and not working, and her bed was torn and dusty. It's heart-wrenching to see a human being living in such a condition," she recalled, shaking her head in disbelief.

The CER students sprang into action. With the owner's permission, they rummaged through the mountain of plastic bags, boxes, broken appliances, and empty bottles accumulated over the decades, carted away unwanted garbage, cleaned up the place, and reorganised Mdm P's possessions into neat boxes.

Drenched in sweat after the operation, Fiona Giam said: "Tough work, but it was worth it. I hope we have helped Auntie to lead a better life."



*Valerie and Fiona in action*



*An elated Mdm P after the clean-up*



*Before*



*After*



*CER student, Li Jun Jie, explaining his project to Education Minister Mr Heng Swee Keat at the exhibition*

## Clean & Green Singapore Carnival

Students and staff from the Diploma of Clean Energy (CER) shared about their "green" research work and environment friendly projects at the annual North East Clean & Green Singapore Carnival held at the Tampines Community Plaza on 17 & 18 Nov '12.

Among the projects exhibited at their booth, entitled "Eco-work by TP Students", were a Photovoltaic System with Solar Tracker, the Eco Click (an energy saving electrical socket) and a Fuel Cell Gas Diffusion Plate. The students also shared about their experience installing solar powered LED lamps to replace the villagers' use of candles in a village in Thailand.

# PLEASE RETURN ME!

Are you too lazy to return your food trays after eating at food courts and coffee shops? Soon, you'll have to do it, or lose \$1.

A group of Mechatronics students have invented a unique tray returning system. Using the same concept as supermarket trolleys, a customer will have to insert a \$1 coin into a slot on the tray in order to unlock and pull it out from a rack. In order to retrieve the \$1 coin, they would have to deposit their used plates/bowls into a bin, and then slot the food tray back into the rack.

Each shelf of the rack can accommodate 9 trays, and an entire shelf can be removed from the rack and brought to the washing area to be spray-rinsed, thereby raising the productivity of hired cleaners at the same time.

If you think you can by-pass this system by carrying your own bowls to your table without using a tray, you'd be surprised. This special tray will be used in conjunction with specially designed tables without



*Helping to cultivate a positive social habit among Singaporeans are (from left): Sanasi, I-Chieh and Effendy*

a top. The tray itself, when slotted into the table frame, serves as the table top, so you can't eat without a tray!

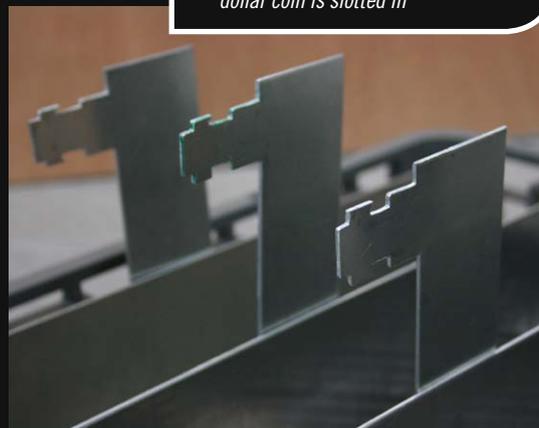
The School is currently in talks with the National Environment Agency to explore the feasibility of implementing this tray returning system at eating places across Singapore.

How about that for a dollar's worth?!

*The key to success: the lever which locks the tray in the rack until a dollar coin is slotted in*



*The coin slot at the back of the tray*



*I-Chieh demonstrating how to slot a tray into the table frame*



# HER RAINBOW IN THE SKY

Clad in her batik sarong kebaya, she stands at the entrance of the aircraft, hands you the day's newspapers with a smile, and welcomes you to your "home" in the sky. Meet **Jane Chia Kiat Hoon**, 20, a cabin crew with Singapore Airlines.

A former student of Anglican High School, Jane graduated from Temasek Polytechnic with a Diploma in Aviation Management & Services (AMS) in May 2012. Having completed her 3-month training at the SIA Training Centre, she now graces the aisles of our national carrier.

### How was the training at SIA like?

We have theory lessons and practical sessions covering customer service and safety aspects. We serve real food to "passengers" in a mock cabin. I prefer to play the role of "passenger", as I get to eat the food that my colleagues serve!

### Why be a cabin crew?

It's exciting because I face different challenges everyday. Being a cabin crew keeps me in shape not only physically but also mentally. Metaphorically, the whole world is fitted into our

cabin, and I enjoy meeting people of different nationalities and experiencing different cultures.

### Has your AMS diploma from TP helped you?

Definitely. My AMS course has widened my perspective of the aviation industry. A cabin crew also needs to know how airlines and airports function, you know. I would say I have an advantage over those who did not go through the AMS course.

During my final year at TP, I did my internship as a cabin crew with Tiger Airways. That further motivated me to be a cabin crew after graduation.

### Any advice for those who want to be a cabin crew?

Be positive, receptive, and adaptive. You also need to realise that being a cabin crew is not just about looking glam or travelling around the world. You have to be ready to wear different hats when a situation calls for it!



The Singapore Girl from AMS

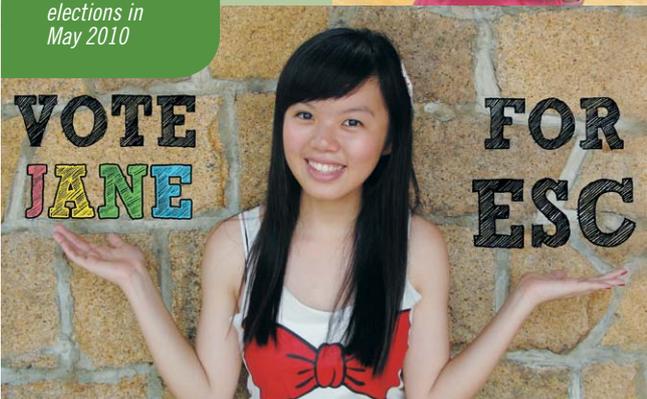


← Jane (arrowed) with fellow SIA cabin crew trainees

Flashback:  
Jane (behind)  
celebrating the  
School's 20th  
Anniversary in  
November 2011



In her 2nd year  
at TP, Jane ran  
for – and won  
– the student  
elections in  
May 2010





# THE TP SCHOLARSHIP

Newly enrolled students with excellent 'O' level results and CCA record can now apply for the prestigious bond-free Temasek Polytechnic (TP) Scholarship worth \$2,500 per year, for their diploma studies in TP. Recipients of this scholarship will also be able to join an exclusive Student Leadership Programme (SLP) with opportunities to participate in overseas projects as well as leadership and talent development programmes.

Application for this scholarship is open from now until 29 Apr '13. For more information, go to: <https://www.tpscholarship.tp.edu.sg/>

In addition, a new TP-Goh Foundation Scholarship, also worth \$2,500 a year, will be given to an outstanding 'O' level school leaver whose financial background meets the criteria. Application for this scholarship opens in May 2013.



## SCHOOL OF ENGINEERING DIPLOMA COURSES



### COURSE ENQUIRIES

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- Biomedical Engineering **NEW**
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- Electronics
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- Infocomm & Network Engineering
- Integrated Facility Management
- Mechatronics
- Media & Communication Technology
- Microelectronics

### SPECIAL PROGRAMMES

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- Electrical & Electronic Engineering Programme
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