ENGINEERRUS

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POLYTECHNIC

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HOW TO SUCCEED IN A POLYTECHNIC



Devana Pillay graduated with a Diploma Microelectronics (Merit, Course Silver Medal) in 2007, and was awarded a scholarship to pursue a degree in Business Management at Singapore Management University on an SMU scholarship. A leukemia survivor, Devana is no stranger to setbacks and struggles in life. He shares his 10 "poly-success" secrets that will make your journey in TP a memorable and fruitful one:

#1. PLAN, PLAN, PLAN, and EXECUTE

Take note of when the tests or quizzes are. Print the course schedule (usually found in your course-book) and stick it on your wall or somewhere prominent. Highlight the important dates and remember to check the schedule. Ignoring it is as good as not having it there!

#2. BE CONSISTENT IN YOUR WORK!

Unlike in secondary school, things are more cumulative in Poly. Be prepared for every graded assessment. If it's a lab-assessment, go to the free-access labs and practice beforehand. If it's a quiz, study for it! Past-year papers are very helpful too.

#3. TIME MANAGEMENT

Be practical, factor in some buffer time for things that may crop up. Plan your tasks using this 4-quadrant table, and do those in the "Urgent & Important" quadrant first. Here's an example:

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Study for tomorrow's Test Complete Maths assignment 2 Buy mum's medication

URGENT BUT NOT IMPORTANT

Mark tuition homework by Wed Buy toothpaste

NOT URGENT BUT IMPORTANT

Print past-year papers for EMaths2 Buy flowers for girlfriend Spring clean my bedroom Replace HP's cracked LCD Train up for NAFA / IPPT

NOT URGENT, NOT IMPORTANT

Loan storybook from library Meet up with old classmate Watch movie Wash my sneakers

#4. NEVER SKIP LESSONS!

Lectures are the best time to learn something. If you have a question, even if you think it's a lame one, ASK! It's better to clarify doubts earlier than later. When other students ask questions, listen and learn too! Furthermore, topics that the lecturer seems more interested to cover during lectures are usually those that will appear in the exams.

#5. MIND YOUR BODY

Take care of your health and be mentally prepared for the Poly marathon. Get enough sleep before an early morning lesson. No use being in class when your brain cannot absorb anything. Do not feast before a lesson. The heavier your meal, the more likely you will doze off. Bring a water bottle, as drinking plain water helps to keep you awake. Avoid sugary drinks which will induce sleep (after the initial sugar rush).

#6. FRIEND OR FOE?

Polytechnic is a fun place, but it can also be too fun a place to study. Make sure your circle of friends or project mates are motivated to study, because laziness is infectious. If you can't find any like-minded souls, then you're better off flying solo, otherwise you'd crash and die with the pack.

#7. CCA MYTH

GPA is still your ticket to a local Uni or a great job. By all means, pursue some CCAs as they are a great place to make new friends and try new things. But always remember your primary duty as a student - which is to chalk up that GPA!

#8. BE NICE TO EVERYONE, ESPECIALLY **LECTURERS**

It shocked me that some of my poly-mates could be rude to their lecturers and lab-technicians. These rude students paid the price when they needed extra help or coaching. (Somehow, lecturers were busier when these "rascals" approached them).

#9. KEEP TRACK OF YOUR GPA

Keep an eye on your GPA so that you know how much better you need to perform to reach your target. Here's my gift to you... a Poly CGPA calculator! You can download it here: http://bit.do/poly gpa

#10. KEEP THE END IN MIND

It's a long learning journey, so remind yourself frequently of your ultimate goal - such as the GPA you want to achieve. A friend of mine printed the following words and pasted it on her room wall: "Make it to NTU!!" It's totally up to you!

> Adapted from article by Devana Pillay (http://www.devanapillay.com)



Want to know what Poly life is like? Why not experience it for yourself before you decide whether it suits you?

Samuel Chang, Nicholas Wongsodihardjo and Ta Vu, Sec 3 students from Temasek Sec School, did just that. They were among more than 30 students from various secondary schools who participated in the week-long TP Buddy Programme run by the School of Engineering from 5-8 and 11-15 Nov '13.

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

Samuel found the experience invaluable. "Websites and brochures can only give me factual information, whereas this programme allows me to experience Poly life first-hand," he assessed.

and Jamie

Nicholas, who successfully created a 3D animation clip during his attachment, agreed: "I realise that a Poly education is actually more practical, more hands-on," he said.

Ta Vu, on the other hand, adopted a more culinary viewpoint: "The variety of food in the many canteens here is awesome!" he laughed.



Participants who got the real taste!

GETTING A SNEAK PREVIEW

Hundreds of students from different secondary schools got a glimpse of what they would be learning at TP's School of Engineering, at the biannual TP Sneak Preview, held from 14 – 17 Oct '13.





Pasir Ris Sec School ("Fuel Cell Wonder", 16 Oct '13)

WERE YOU HERE?...

Hundreds of secondary school students visited TP's School of Engineering in October 2013, where they toured the facilities and attended workshops to pick up skill-sets related to the field of Engineering.







Changkat Changi Sec School (Tour of facilities, 21 Oct '13)





Two students from the Diploma in Clean Energy, Wincy Koh and Poh Jun Jie, have been crowned Bayer Young Environmental Envoys (BYEE) 2013, for their project contributing to environmental conservation in Singapore.

Wincy's project involved setting up an outdoor solar system laboratory for students of St Margaret's Sec School to learn about solar energy, thereby taking learning out of the classroom.

On his part, Jun Jie designed and installed a "Solar Sustained Bio-retention Rainwater Harvesting Cum Sterilisation System" for Tampines North Primary School's mini eco-farm where the pupils plant and learn about food crops. His new system replaces the old pipeline used to channel water to the eco-farm, thereby solving the problem of leaking pipes, while allowing the primary school pupils to learn about solar power.

among youths as part of the United Nations Environmental Programme.

The BYEE is a global educational initiative to raise environmental awareness



The "Elderly-Safe Stove" in action

The solar powered selfirrigating rain garden is a wonderful teaching material for the pupils to learn how natural resources can be recycled and nothing is wasted. The whole project was 'Science come alive' for our pupils!

> - Mdm Yeo Dai Yun Principal. Tampines North Pri School

Bending down to check the size of a flame under a cooking pot on a gas stove is simple enough for most of us, but it could be quite a challenge for the elderly and infirm. Noticing how her grandmother struggles to do it, Daphne Tan decided to invent a device to solve the problem.

Together with her team-mates, she invented the "Elderly-Safe Stove", which is a portable device with red LED lamps to indicate the size of the flame under the cooking pot. It can also detect any gas leak and sound a buzzer to alert the user.

The device helped the team to secure the Top Platinum Award at the annual YEA Innovation Fiesta Competition held on 11 Nov '13 - the third time TP has won this top award.

Daphne and her team, who are from the Diploma in Business Process & Systems Engineering (BZE), have demonstrated creativity and enterprise in coming up with a product to plug a need in a niche market - a skill which they have acquired from their diploma course.



The BZE problem solvers with their "Elderly-Safe Stove" and another winning project, the "A-Frame"

CAUGHT RED-HANDED!

Four students from the Diploma in Media & Communication Technology have opened the door to safer homes for HDB residents.

Their invention of the "Wireless Crime Detection System", also dubbed the "Ah Long Detector", will be able to catch loan shark runners red-handed – literally – when they splash paint on the door of a flat. A sensor detects the paint vapour, while a motion sensor confirms the presence of a person. When both sensors are activated together, a hidden camera snaps a photo of the culprit, and automatically sends the image to the police, together with the exact location of the HDB flat.



Our crime busters will make your HDB home safe

Since an experienced loan shark runner is likely to splash the paint onto a closed-circuit TV (CCTV) camera in the first instance to obscure the camera's lens, the paint sensor is mounted on a dummy CCTV to catch the paint vapour.

The ingenious invention won the students the Silver award at the Security Awareness for Everyone (SAFE) competition held on 21 Oct '13, in conjunction with the Home Team festival at Singapore Expo Hall 4 where the project was exhibited from 8 – 10 Nov '13.



AN EYE FOR 3D

Now, there is no need to wear troublesome 3D glasses in order to make graphics and pictures come alive.

A team of researchers from the School of Engineering, working with scientists from A*STAR, have invented a revolutionary screen protector which, when applied to your mobile device, turns ordinary 2-dimensional pictures and graphics into rich 3-dimensional content without the need to wear any 3D glasses.

Called the "Eye-Fly-3D", the 0.15mm thin screen protector turns ordinary mobile devices into 3D viewing platforms, and is currently being commercialised.

The invention clinched the Institution of Engineers Singapore (IES) Prestigious Engineering Achievement award (Technology Innovation category) on 13 Sep '13, as well as the Singapore Infocomm Technology Federation (SiTF) award on 10 Oct '13.

The dual awards are testament to the ingenuity and creativity of TP researchers in turning lab research into a viable consumer product.



Temasek Polytechnic and A*STAR representatives receiving the award at the World Engineers Summit awards presentation ceremony







THE READINESS IS ALL

The School of Engineering held its annual Fire Evacuation Drill on 23 Oct '13.

When the alarm sounded at 4.30pm, staff, students, cleaning workers, and even canteen vendors scrambled to the gathering area at the Triangular Gardens next to the Koi ponds.

Chief operations officer, Mr Dexter Phang explained: "Ignorance is bliss, but bliss can be costly. We have to be prepared at all times."



JAN-erally Successful

A hectic but successful January saw several major events held in TP, which attracted thousands of secondary school students, parents, and industry guests.





TP Open House (9 - 11 Jan '14)





You tread tentatively as you enter the narrow passage, your heart thumping in excitement but fear. A musty smell envelopes you. You grope your way around in pitch darkness, cobwebs slashing your face as you progress, step by step, towards the unknown. Then, out of the total void, a bloody half-mutilated body screams into your ears.

Would you pay \$2 for that 5-minute experience? Hundreds of students did so during the biannual Campus Care Network (CCN) Day carnival held on 15 Nov '13, with no regrets.

Two horror houses were among about 120 carnival stalls set up by Engineering students, helping to raise a total of \$33,056.82 for the CCN fund for needy TP students.



Team Temasek Horror



Dead woman seeking revenge



The pontianak



Capture yourself in Manga for \$5



Sir, try this concoction, from our hearts...



GREEN VISIT

A stone's throw away from the TP campus sits the United World College of South East Asia (UWCSEA) east campus. From the outside, it looks like any normal modern campus. But did you know that this Green Mark Platinum awardwinning campus is packed with energy-saving green features?

That was what about 30 students and 10 staff from the Diploma in Green Building & Sustainability (GBS) found out during a visit to the campus on 19 Jul '13.

The campus' green features include a deliberate northsouth architectural orientation to minimise exposure to solar radiation, light shelves in classrooms to utilise natural daylight, the use of 100% fresh air for cooling and ventilating classrooms, and an energy-efficient chiller plant of 0.58 kW/RT which also serves as a showcase-cum-learning platform for one of the Building & Construction Authority's certification courses. There is also a solar thermal system that produces the campus' domestic hot water needs while powering an absorption chiller to help reduce the chiller plant's electrical consumption.



Mr Simon Thomas, Director of Operations & Facilities, explaining the lighting and ventilation features of the campus

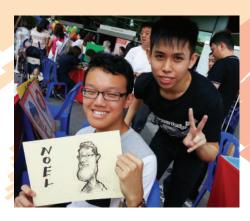


DRAWING FOR FUND

About a dozen students from the Diploma in 3D Interactive Media Technology (IMT) turned artists for a day and put their drawing skills to good use at a fund raising event held at nex Shopping Mall on 17 Aug '13.

Their hand-drawn caricatures, which took about 15 minutes to complete, were sold for \$10 each, raising a total of about \$1,000 for the Down Syndrome Association of Singapore.

The event was organised by "Touch of the Hearts", a charity organisation run by NTU's Hall 4.







CLEANSING EXPERIENCE



Meredith (right) the custodian, with her IFM course mate,



Meredith Wee from the Diploma in Integrated Facility Management (IFM) was attached to Walt Disney World in Florida, USA, for her internship from 6 May – 30 Aug '13, working as a Custodian (otherwise known as a Cleaner). She shares her experience.

By Meredith Wee (IFM)

Working as a cleaner wasn't really my idea of an internship. I mean, isn't an internship supposed to train you for your future job? I'm not aiming to be a cleaner after graduating, so I wasn't too impressed. But wait, you haven't heard my full story.

After some initial training, I hit the streets, literally. I was assigned to clean the grounds of EPCOT Future World. In the scorching heat, I felt like I was going to faint any time. However, the guests in the park gave me the strength to carry on. They would always say, "You're working too hard, you should rest!" or "Thank you for your hard work!" Really, would I hear such things from Singaporeans? The guests at Disney World really made me feel appreciated, although I'm just a simple cleaner!

Then one day, I saw a child fall from the rails and blood was oozing from his head. Together with my colleague, Abigail, we dashed to help the boy and eventually got him into an ambulance. Then we had to clean up the blood on the floor. But after we had finished the cleaning, guess what? The surrounding guests spontaneously gave us a round of applause!

After 2 weeks, I was assigned to clean restrooms. It was like crazy as the toilets needed to be spick and span at all times, which was almost impossible. Once, the sink even got clogged and it was just horrible! The water came gushing out like a fountain and flooded the whole toilet. I had no idea what to do and I had to close the toilet and apologise to the guests.

Despite the stigma of being a cleaner, I am thankful to have been assigned this job because the humbling experience has made me realise that I have been taking many things

in life for granted. In the process, I have also given my American colleagues a better picture of Singapore, because initially, they had the idea that all Chinese are from China and cannot speak English! I'm glad I've set that straight!

In retrospect, this is probably one of the best internship jobs at Walt Disney World.





A UPP Physics class in progress

TP offers new UPP in English

A new University Preparatory Programme (UPP) in English will be introduced in March 2014.

It caters to those who wish to enhance their language ability in preparation for university education. There will be particular emphasis on the vocabulary and grammar suited for an academic learning environment, while also preparing students for any English Language entrance proficiency test set by universities.

This new UPP in English is the latest addition to TP's stable of UPP modules. The other four UPP modules are: Foundation Mathematics, Mathematics, Physics and Chemistry.

Members of the public pay \$390 for each 6-week module, with former TP students getting a 10% discount. Current TP students pay only \$107.

Students who complete each UPP module will be awarded a Certificate which may earn them credits or exemptions in their first year at university. For instance, the National University of Singapore (NUS) grants exemption for the modules "Introductory Mathematics" (MA1301) and "Fundamentals of Physics I" (PC1221) to students who had successfully completed the UPP in Mathematics and UPP in Physics, respectively.

EXPLORING TAIWAN

A team of 16 students from the Diploma in Green Building & Sustainability and 24 from the Diploma in Integrated Facility Management embarked on a 6D5N study trip to Taiwan from 6 – 11 Oct '13. One of them, Michael Lim, reports.

By Michael Lim (IFM)



Michael (extreme right) and his buddies at the Chiang Kai-shek Memorial Hall

Olemasek Temasek Polytechnic School of Engineering Overseas Study Programme (Taiwan) 6th Oet 2013 to 11th Oet 2013

One of the highlights of our trip was the visit to "Taipei 101" – for 6 years the tallest building in the world with 101 storeys (incidentally, that's how it got its name!). Built in 2004, the building was awarded the Leadership in Energy and Environmental Design (LEED) Platinum certification. We were taken around to learn about its waste management system and rainwater harvesting system which caters to 25% of the building's water needs.

We then visited the Green Library, a two-storey eco-friendly green building which uses natural air ventilation throughout its operating hours.

Next up was the National Chiang Kai-shek Memorial Hall in Taipei. There, we made some interesting discoveries: Did you know that its train station is the only one in Taiwan that does not have any advertisements, as a mark of respect to the late General Chiang Kai-shek? In addition, the number of stairs leading to the memorial hall is equivalent to the number of years that Chiang Kai-shek lived (which is 87).

We also visited several cultural attractions, such as the Yilan Lanyang Museum and the National Centre for Traditional Arts, a 70's era street filled with shops selling traditional handicrafts and food items.

"Nothing ever becomes real till it is experienced," says the 19th century romantic poet, John Keats. Well, what we have learnt in the classroom has certainly become more real for us!

COMING CLEAN WITH THEIR PROJECT



CER student, Xun Quan, explaining the RETT to Minister S. Iswaran





CER students installing solar lighting at Project Khmer Hope Centre

A team of 15 students from the Diploma in Clean Energy (CER) exhibited their "Renewable Energy Testing and Training Platform" (RETT) at the Youth Energy Showcase, held in conjunction with Singapore International Energy Week from 28 Oct - 1 Nov '13.

The RETT, equipped with a wind turbine and solar system, can be used to train student volunteers bound for Overseas Community Projects (OCP) in third world countries where they install energy saving devices, or to test the devices under weather conditions anticipated there.

The students also shared about their experience in installing solar lamps at Project Khmer Hope Centre – an education centre for needy youths in Aoral, Cambodia – during their OCP from 8 – 15 Oct '13.

The exhibition, organised by the Energy Market Authority, was graced by Mr S. Iswaran, Minister in the Prime Minister's Office and Second Minister for Home Affairs and Trade & Industry, as well as ministers from Cambodia, Brunei, Myanmar and Australia.





FIGURE IT OUT...

And win a limited edition wooden thumb-drive

 $(x, y, z) \otimes (a, b, c) = (x \times a, x \times b, x \times c, y \times a, y \times b, y \times c, z \times a, z \times b, z \times c)$

Choose 2 sets of integers (x, y, z) and (a, b, c) from 0 to 9 inclusive where x, y, z, a, b, c are all different. Now generate their cross-products xa, xb, xc, ya, yb, yc, za, zb, zc. If any of the resulting cross-products are duplicated, it is counted as one element only. We want 5 elements to remain in this cross-product set. What are the integers (x, y, z) and (a, b, c)?

Example:

(1, 2, 3) and (4, 5, 6) generate 4, 5, 6, 8, 10, 12, 12, 15, 18. There is a double entry for 12, so after removing one of them, we have 8 elements left in this cross-product set.

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 with the subject title, "Engineerrus Maths Puzzle 6".

The first 10 correct entries drawn after the closing date (1 July 2014) will each win a limited edition hand-crafted wooden thumb-drive.

ANSWER TO QUIZ #5

V + F - E = 1

Nirubashini Naidu (Pioneer), Pan Tong (Ping Yi), Toh Jia Cheng Darren (First Toa Payoh), Rachel Tan JiaXuan (Bukit Batok), Low Yizhan Jordan (Woodlands Ring), Issac Goh (Bedok North), Theresia V. Rampisela (Chong Boon), Zhou Qianqian (Tanjong Katong Girls'), Jiang Yue (CHIJ St Nicholas), Tan Kai Way (Ahmad Ibrahim).

NEED A HELPING HAND?

The Helping Hand

Here's a helping hand to make dish washing safer and easier. A device, called "The Helping Hand", allows dishes and even cutlery to be secured in place while the user washes them.

This ensures that users do not drop and break the dishes during washing, especially if the porcelain is wet and slippery.

Easily attachable to any household sink, this add-on contraption comes with 2 interchangeable heads – one for plates and another for cutlery and glasses – and is especially useful for the elderly with weak hand-grip.



Giving you better grip in life are (from left): Hazmi, Mirza and Aizat



How does it work?

The plate holder comprises a clamp which can be rotated 360°, allowing the plate to be flipped over for the underside to be washed. The cutlery holder, on the other hand, comes with slots for the cutlery to be inserted, as well as a circular hole for glasses.

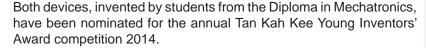


The food trays on which you place your french fries and burgers at fast food joints often get stained with sauces and other fluids. This makes it very difficult for the staff to clean the tray.

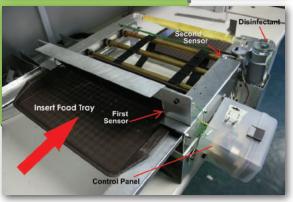
A new machine, called the "Food Tray Cleaning System" will clean the trays automatically, thereby saving on manpower while ensuring better hygiene.



When a tray with leftover items is inserted into the machine, an obstacle sensor detects the tray and activates the convey belt which starts moving. Any item on the tray is first swept into a thrash bin by an overhead barrier. When the tray reaches a second sensor, a cleaning liquid or disinfectant is triggered and dispensed onto the tray. A sponge and brush will then wipe the tray clean. All this is done in about 10 seconds, which means 6 trays can be cleaned per minute.









Sultex In Upw

Since we carry our laptop with us everywhere, why not let it carry things for us?

With that burning question in mind, **Chew Jia Ying** decided to design a stick-on organiser, attached to one's laptop, to house the numerous "add-ons" that people usually bring with them — mouse, thumb-drive, ear piece, USB cable, or external hard-disk.

"It was part of my second year module at NUS, when we had to design and market an original product," explains Jia Ying, who had gone on to pursue a Bachelor of Arts (Industrial Design) course after graduating with a Diploma in Integrated Facility Management (Merit with Course Gold Medal) from Temasek Polytechnic in 2011.

She designed the organiser, called the Stitx, together with two course-mates and commercialised it in collaboration with local bag manufacturer, Uyii. The Stitx is now retailing for \$59.90 at design stores such as "Totally Hot Stuff" at The Cathay, and Central @ Clarke Quay.

"We trust that this product can be a hit with tertiary students and nomadic workers who are always on-the-go with their laptops," excites the 24-year-old former student of Ang Mo Kio Sec School, who plans to remain in the creative industry after getting her degree.

She says: "I miss my days in TP because that was where I felt most at home throughout my years of education. TP was like one big family to me," she recalls.

STIT > Uyůř DESIGNED & MADE IN SINGAPORE

Specially for ENGINEERRUS readers:

Order the Stitx online from www.uyii.com.sg, and receive a 15% discount when you key in

this code: "tpmag2014" (case sensitive). Expiry date: 31 Aug 2014.





Jia Ying (2nd from right) celebrating "Graffiti Day" at Aalto University during an NUS exchange programme to Helsinki, Finland, from August to December 2013



Flashback: Jia Ying receiving her diploma and Course Gold Medal on her graduation day

AN EMPIRE @ UNSW



Some of the AMS alumni at UNSW (from left): Lee Jia Xin (Tanjong Katong Girl's Sec), Kristal Khoo (Tampines Sec), Wang Shan Ying (Temasek Sec), Ng Peck Yeng (Changkat Changi Sec), Caderina Lim Pei Xuan (Yuan Ching Sec), and Jonathan Soh (St Joseph's Institution)

So many students from the Diploma in Aviation Management & Services (AMS) have been pursuing their degree at the University of New South Wales (UNSW) in Australia, that they could literally set up a mini AMS empire in their department.

Currently, nine of them are pursuing a Bachelor of Aviation Management degree at UNSW. Armed with an AMS diploma from TP, all of them received an exemption equivalent to one year, which means they need just 2 years to get their degrees.

Says **Jonathan Soh**, who graduated with an AMS Course Silver Medal in 2011: "My AMS diploma has given me the necessary knowledge to excel in the aviation industry."

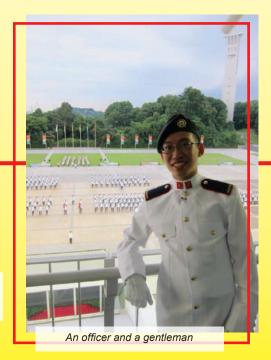
The former St Joseph's Institution student, who also won the UNSW Golden Jubilee Scholarship at university, recalls: "My most memorable event in TP was the annual campus relay, where the entire AMS population gathered to cheer and support our lecturers and student runners. To me, this reflected the strength of the course, a camaraderie

and bond that have been built into its students, something which not many other courses can replicate."

Another AMS alumnus at UNSW, **Caderina Lim**, adds: "I remember how our AMS lecturers were always willing to share their personal work experiences and give us useful industry tips," she recalls.

AMS diploma holders enjoy strong recognition both locally and overseas, with universities in Australia, New Zealand, UK and USA offering between 1 to 2 years of exemption for degree programmes there.





A TOUGHING INITIATIVE

The School of Engineering has set up an interactive learning classroom equipped with six huge LCD touch-screens to facilitate teaching and learning.

Students are able to write on the screens with a stylus, choose different colours, or convert their handwriting to standard fonts. The lecturer can project an image on any one, or all, of the LCD screens, or choose a different image for each of the screens. Students can also plug in their laptops and make a presentation right where they are.

Lecturer, Ms Maria Teresa Abelanes, said: "To me, the most useful feature is being able to switch a display on one screen to another screen, so that another group of students can evaluate their classmates' answer, write their comments onto the display, and then transmit it back to the original group to be saved."

Located at Block 25, Level 5, the interactive classroom is a pilot project done in collaboration with Panasonic Singapore to make lessons come alive for students.





SCHOOL OF ENGINEERING DIPLOMA COURSES

- 3D Interactive Media Technology
- Aerospace Electronics
- Aerospace Engineering
- Aviation Management & Services
- Biomedical 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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