SKILLSFUTURE
What it really means for Ngee Ann's students and graduates
Wayne Goh was just a 19-year-old Accountancy student at Ngee Ann Polytechnic (NP) when he co-founded AllDealsAsia with his sister in 2011. Today, the website—which aggregates deals across Southeast Asia—is a thriving business, generating about $12 million last year.

Wayne is among the success stories featured in Those Who Dared. The commemorative book was launched in March by The Sandbox, NP’s innovation and entrepreneurship office, with MOE Parliamentary Secretary, Associate Professor Muhammad Faishal Ibrahim as the Guest of Honour.

The book features close to 50 interviews with NP alumni entrepreneurs, including Creative Technology CEO, Sim Wong Hoo, and Carousell’s co-founders, Quek Siu Rui and Marcus Tan.

At the book launch, NP also signed a Memorandum of Understanding with Action Community for Entrepreneurship (ACE) to form an ACE Student Chapter facilitating student-driven entrepreneurial activities. NP students can go on internships at the 500 startups that are part of the ACE community. NP and ACE will also co-organise activities such as Campus Life Hackathons where participants will brainstorm solutions to solve campus issues.

Getting a career head start is what Ngee Ann Polytechnic (NP) students can look forward to with NP@Glints, a dedicated online platform with over 1,400 active internships and curated jobs.

The portal, launched in January under a Memorandum of Understanding between NP and Glints, lets students self-source additional internships instead of waiting for their final-year attachments. These supplementary internships allow students to deepen skills in their fields of study and develop new capabilities in alternative areas. Alumni who have graduated in the last two years can also access NP@Glints.

The portal is aligned with NP’s Career & Professional Preparation modules, so students can hone their job application skills while seeking advice from NP’s Education & Career Guidance counsellors.

Final-year Information Technology student, Yong Yao Wei, had secured a two-month internship as an events co-ordinator at Nucleus Events Production through NP@Glints. He said, "I wanted to gain exposure in a non-IT field. I’ve learnt many lessons that can’t be found in textbooks, like how much time and effort goes into executing an event.”
gee Ann Polytechnic (NP) welcomed senior officials from the Ministry of Education (MOE) on 26 April 2016. Mr Ong Ye Kung, Acting Minister for Education (Higher Education and Skills), Dr Janil Puthucheary, Minister of State (Education & Communications and Information), and Associate Professor Muhammad Faishal Ibrahim, Parliamentary Secretary (Education & Social and Family Development), toured the campus accompanied by NP’s Principal, Mr Clarence Ti.

They visited various academic schools, interacted with students and viewed their projects during the tour. They also made a stop at the Makers’ Academy, where budding innovators can build prototypes using a wide range of equipment.

**ACTING MINISTER’S TOUR OF Ngee Ann CAMPUS**

How is what I’m studying relevant or useful? This is a question which many have asked at some point in their student lives. And it is a question that Ngee Ann Polytechnic (NP) is aiming to address through the Service-Learning pedagogy, which it has infused into its core curriculum from the new academic year in April 2016. NP is the first polytechnic in Singapore to do so.

Service-Learning aims to imbue a sense of purposeful learning and active citizenry in all NP students. They will take at least one such module, using skills and knowledge gleaned from their course to develop projects that benefit the community.

“Service-Learning presents an ideal platform for our students to identify, empathise with and develop a deeper understanding of the community’s needs,” said NP Principal, Mr Clarence Ti. “We also want to encourage purpose-driven learning, that is, to address the ‘why’ behind what they are studying. When students know why, they will be more passionate in their pursuits.”

Final-year Business & Social Enterprise students, Liew Yan Zhang and Chong Yao Xiang are among those who have benefitted from the Service-Learning experience. The duo embarked on a trip to Cambodia’s SMILE Village, where they used their skills and knowledge of building a social enterprise to create a recycling project for the villagers.

“We’re very fortunate that Service-Learning has allowed us to apply classroom knowledge to the real world and be at the ground level to understand real-life problems. It’s deeply rewarding to apply what we’ve learnt in our course to help the needy lead better lives,” they said.

To date, NP has partnered some 40 local and overseas non-profit organisations, including the Movement for the Intellectually Disabled of Singapore, SMILE Village and Hong Kong’s Lingnan University to offer students diverse and meaningful Service-Learning opportunities.

**PIONEERING A NEW PEDAGOGY IN SERVICE-LEARNING**

New Service-Learning initiative lets every student use their skills and knowledge to benefit the community. **Text: Grace Yeo**

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**NURSING A PASSION FOR PEOPLE**

As a trainee nurse on a clinical attachment at the National Heart Centre, Jacob Tan Wei got to put his classroom skills into practice every day.

“We modify the principles we’ve learnt in school according to each patient’s needs and condition. I also got to practise my communication skills because these are real people, not mannequins, whom I am dealing with,” said the final-year Health Sciences (Nursing) student.

“Service-Learning exposes you to different kinds of people and helps you step out of your comfort zone. When you learn about the world, you also learn about yourself,” he said.

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SkillsFuture is about deep skills and a future-ready workforce. Deep skills come with knowledge, practice and experience. This learning cycle is iterative and lifelong... the learning goes on until you attain mastery. – Mr Ong Ye Kung, Acting Minister for Education (Higher Education and Skills), at the MOU signing ceremony for the Power Engineering Sector.
INDUSTRY MENTORS' NETWORK

Right from their first year, NP students will gain increased exposure to career pathways and opportunities within their chosen industry, thanks to the Industry Mentors’ Network (IMN) programme. They will also be able to interact personally with an industry practitioner in their field of study.

With the IMN, each student will be assigned an industry mentor who will provide professional guidance and career advice to a small group of three to four students. Previously, only final-year students were assigned mentors.

The IMN forms a vital segment of the Education & Career Guidance initiative. It was launched with 27 companies coming on board with NP, Singapore Polytechnic and Temasek Polytechnic. Ernst & Young, Barclays, NTUC and Pricewaterhouse Coopers are among the corporations which have joined the programme.

The IMN was launched in December 2015 with:

- 850 Students from 8 courses
- 200 Mentors from 27 corporate partners

GAINING INDUSTRY INSIGHTS

As part of the Industry Mentors’ Network (IMN) programme, second-year Chemical & Biomolecular Engineering student, Athanasius Tan, got an inside look at just how the biopharmaceutical industry works when he visited Lonza Biologics in March.

At the invitation of his mentor, Mr Chai Chong Meng, Lonza’s Head of Mammalian Manufacturing, Athanasius toured the large-scale biotechnology facility along with four other classmates. There, they were introduced to the cleanroom environment where biopharmaceutical drugs and therapeutic proteins are manufactured.

“The IMN has been a great eye-opener so far. It has helped us to better understand our field of study and has given us a more realistic idea of what to expect in our future jobs,” said Athanasius.
YOUNG TALENT PROGRAMME - MARKET IMMERSION

Students can look forward to broad international exposure with the Young Talent Programme (YTP)-Market Immersion that prepares them for global careers.

Under an MOU signed in November between trade agency International Enterprise (IE) Singapore and the five polytechnics, the YTP-Market Immersion will provide talented youths with overseas opportunities to equip them with the right skillsets and experience for future roles abroad. They will receive between $100-$300 in co-funding per week for up to 24 weeks, making global internships and work-study programmes more affordable.

Close to 50 per cent of the YTP-Market Immersion polytechnic cohort sponsored by IE Singapore in 2015-2016 were NP students.

GETTING GEEKY IN CAMBODIA

Class of 2016 Mass Communication graduate Rizqina BteMohamad Mahdzar used to be afraid of venturing beyond Singapore’s shores. All that changed after her internship in Cambodia last year which was made possible with the YTP-Market Immersion. Now, a career overseas is something she is more than game for.

“I spent five months in Phnom Penh as the editor of Geeks in Cambodia, an online technology platform. I wrote articles on mobile and digital trends, interviewed government officials and entrepreneurs, and even developed digital strategies and solutions for our clients. I never thought I’d meet with people from so many different countries in just five months. I used to be afraid of trying out something new, but this overseas internship has made me much more open to a global career,” she said.

Rizqina Bte Mohamad Mahdzar (third from left) with colleagues from Geeks in Cambodia.

EARN AND LEARN PROGRAMME

Fresh graduates can look forward to getting a head start in careers related to their field of study. Under the Earn and Learn Programme (ELP), a SkillsFuture work-study initiative, they will benefit from industry placements, on-the-job training, mentorship and full company sponsorship of course fees while pursuing a Specialist or Advanced Diploma.

SEIZING THE OPPORTUNITY

He was undecided about which path to pursue after his National Service until he chanced upon the Earn and Learn Programme (ELP). “Back then, I was keeping my career options open, but when I knew about the ELP, I thought, ‘Why not give this a shot?’” shared Muhammad Syafiq Bin Nazrin, a Class of 2013 Mechanical Engineering graduate.

Today, Syafiq is an Assistant Engineer in the workshop section of the Mechanical Department of Sembcorp Marine. He is assigned a project vessel and tracks the progress of its parts as they are removed from the ship and sent to the workshop for repairs. Syafiq is also taking a one-year part-time Specialist Diploma in Marine Production in NP which he will complete in October 2016.

“The ELP acts as a bridging programme which I find beneficial. It gives me insights into the marine industry and how it operates. If you’re keen on a career in the marine and offshore sector, you should definitely sign up for the ELP. Seize every educational opportunity you can to enhance your industry knowledge,” he said.
PROJECT HEART-WARE

Graduating Ngee Ann students showcase their creativity in final-year projects that can touch lives and make a difference. Text: Melanie Wee

THE FISHERMAN’S FRIEND

It may only look like a plastic manta ray bobbing in the water, but the Aqon is an aquatic device that could well save fish farmers in Singapore millions of dollars in future.

In 2015, over 70 fish farms suffered crippling losses as an algae bloom wiped out over 500 tonnes of fish and disrupted the supply to markets and stalls.

With the Aqon, fish farmers will be able to monitor key water variables and analyse trends that will help them spot potential algae blooms. Its four probes can be lowered into the water to measure levels of nitrates, dissolved oxygen, alkalinity and temperature at different times of the day. The data is then sent to a customised app or website for easy access by fish farmers.

Class of 2016 Product Design & Innovation graduate, Zason Chan was part of the multi-disciplinary team working on the Aqon as their final-year project.

“I had to create a watertight casing for the device. After researching buoyancy and materials, I chose fibreglass as it is light and floats easily. I also had to ensure the internal components were suitably placed so they would not get dislodged,” he said.

Besides Zason, students from the Environmental & Water Technology course shared their knowledge on water and micro-organisms. Meanwhile, Electronic & Computer Engineering students programmed the website and microprocessor, and tested out the probes.

“I’m grateful for the chance to apply what I’ve learnt in class to develop the Aqon,” said Zason. “We hope it will be a boon to fish farmers in Singapore.”

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EYE CAN MOVE

Commercially available eye-gesture-controlled wheelchairs, while a boon to immobile patients, tend to be highly-priced. Thanks to recent Automation & Mechatronic Systems graduate Wang Jinyu's efforts, such a device could become more affordable, giving these patients a new lease of life.

Jinyu's eye-gesture-controlled wheelchair comprises a motorised wheelchair connected to a laptop and an eye-tracking device. With a customised graphical user interface, patients can view on-screen directional arrows on the laptop. Using the arrows as a guide, patients move their eyes in a specific direction — emulating a joystick control — to steer the wheelchair. The eye tracker is able to "read" the coordinates of the patient's eye-gaze.

During the project's testing stage, Jinyu struggled to keep her focus as she had to spend long stretches staring at the laptop. "It must be so much more difficult for patients who are unable to move," she said.

Senior Manager Mr Edwin Ho, who was Jinyu's project advisor, noted that other similar commercial devices can be priced at over $7,000. In comparison, the eye-gesture-controlled wheelchair only requires a basic eye tracker costing $137. The graphical user interface customised by Jinyu compensates for its lower-end accuracy. The end result is an affordable, intuitive device which can be utilised in nursing homes, community hospitals, daycare centres and patients' homes.

BREAKING DOWN LANGUAGE BARRIERS

Patients at the National Kidney Foundation’s (NKF) dialysis centres can now communicate better with the nurses who attend to them, thanks to a mobile translation app created by two Class of 2016 Information Technology graduates.

Kenny Tan and Lim Wei Jian took four months to develop the Mobile Language & Dialect Assistant (MoLDA) currently used by the NKF nurses. It can translate English words into Mandarin, Malay, Cantonese and Hokkien, depending on the user’s selection. The app lists commonly-used words in different categories such as “Greeting”, “Numbers”, “Medicine” and “Anatomy”.

Users can tap on a word to hear how it sounds. This makes communication simpler for nurses and patients who speak different languages as they can use the app to convey basic words and phrases.

The app includes photos of selected words for visual cues and translations of commonly-used sentences for different medical scenarios. Users can also insert or remove words and graphics, and add multiple languages and audio recordings.

Inspiration for the app came from Kenny, who witnessed how his grandfather had struggled to converse with a nurse when he was hospitalised. "My grandfather could only speak Hokkien, but the nurse was Malay. So when the NKF approached Ngee Ann to collaborate on this project, I couldn’t wait to be a part of it," he said.

"Getting direct feedback from the NKF nurses really helped us to improve MoLDA’s features and user-friendliness," added Wei Jian. The project was supported by the Tote Board’s Social Innovation Research Fund which aims to develop solutions that improve lives and promote independence.

MOVE IT WITH YOUR MIND

When Max Pang and Kimberlyn Loh first embarked on their final-year project, they didn’t expect it to be quite so mind-boggling and intense.

The Class of 2016 Engineering Science graduates came up with a mind-reading robot on wheels that is controlled by the user’s brainwaves. The robot moves when the user is in "meditation" mode or a relaxed frame of mind. When the user blinks, the robot changes directions.

Over six months, the duo experimented on the robot, together with a Bluetooth-enabled headset they had bought. The headset "reads" the user’s brainwaves and sends these signals to the microcontroller mounted on the robot.

"Most research on the emerging field of brain computer interface isn’t well-documented. So we spent hours testing out the headset and its sensitivity in ‘reading’ our brainwaves. Whenever we got tired or nervous, we couldn’t control the robot well as our brainwaves would fluctuate. It was an intense challenge," said Max.

The team hopes the project can be adapted for the physically disabled who are wheelchair-bound. "Patients who are paralysed would be able to move their wheelchairs, just by using their minds. Imagine the freedom it would give them!" said Max.
It’s the people you interact with and their cultures that make travel such a rich, vibrant experience. Just ask Kristine, who returned from Manchester after a two-week summer school programme at the University of Sheffield that saw her working on engineering design projects while making new friends along the way.

NEWFOUND FRIEND: I enjoyed working together with my team to design a 3D model of a solar kiln. It was challenging, but I was fortunate to have a great facilitator who patiently guided me through it.

– Kristine Teoh

FROM STRANGERS TO FRIENDS
KRISTINE TEOH
Clean Energy Management, Year 3

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If there was one lesson that Joel learnt during his 10-day social leadership trip in Melbourne, it would be that change is often led by people who dare to think differently. The aspiring social leader shares how his perspectives were altered after interacting with Australia’s ‘First People’, also known as the Aboriginals, on his first day there.

GREEN LIVING: Did you know that soap can be made from natural materials? I didn’t know that until the Aboriginals showed us how to wash our hands with soap made from leaves! I never realised that the Aboriginals were so dependent on their natural habitat. It has made me more conscious of the pressing need to preserve our environment.

REMEMBER YOUR ROOTS: The Aboriginals have maintained many of their ancient cultural practices and values despite our rapidly changing world. This really inspires me to preserve our traditions so that we can pass them on to the next generation.

Pay-as-you-feel: We visited many social enterprises like Lentil As Everything, a vegetarian restaurant founded on the motto that everyone deserves a place at the table, regardless of their bank balance. You only pay what you can afford based on what you think the meal is worth. I think it’s a great concept that should be implemented in Singapore!

Be Accepting: We can all play a part by being more accepting and inclusive as a society. For example, we learnt that people with disabilities can be more crippled by a society’s mindset, than by their own disabilities.

GAME PLAY: We conducted social experiments on the busy streets of Melbourne, where we used chalk to write phrases like ‘Give me a hug’ on the sidewalks, just to see how people would react. It was really fun!
LIGHTING UP THE BIG SCREEN

For Walt Disney’s lighting and compositing artist Roger Lee, pursuing his dream meant uprooting his family — which included his eight-month-old triplets — to begin life anew in America. Four years and three Oscar wins later, the Class of 1998 Film, Sound & Video (FSV) graduate still hasn’t lost his love for weaving animation magic into iconic Disney movies.

How did you land your job at the Disney headquarters? Working at Disney has always been my dream. I applied through their website and included my showreel, then did a phone interview with several heads from the Lighting Department. And that was it! Within hours, Disney emailed me with a job offer. I flew with my family to their headquarters in California and began working on the animated feature, Wreck-It Ralph. Relocating with our young triplets wasn’t an easy decision, but my wife was very supportive.

You’ve worked on Oscar-winning films like Big Hero 6, Frozen and Rango. What’s your role in the production process?
My job involves digital lighting and compositing. In digital lighting, we manipulate colours and light using 3D software, to set the mood for a particular scene such as a foggy London street or an eerie room. During compositing, all the raw images are combined to form the final, polished image. I love the fact that my work plays an important part in how the movie finally turns out.

How has your FSV background helped in your work? FSV gave me a solid foundation in film-making basics. I learnt a lot about studio lighting using real lights. This has helped in my current job at Disney where I also handle lighting — only it’s now virtual lights in a 3D software!

What advice can you give to those who may be inspired to follow in your footsteps?
I’d like to quote from former American president, Abraham Lincoln: “I will prepare and some day my chance will come.” To aspiring animation professionals, I would say never stop honing your craft. Be ready for opportunities and rise to the challenge, even if it may be uncomfortable and you may be tempted to let it pass by. I strongly believe that if you want something and pursue it with a passion, you will achieve your goal one day.

DANCE FOR A CAUSE

Ngee Ann Polytechnic’s (NP) Arts Fiesta, held from October to December 2015, was a colourful showcase of dance, music and drama, all for a good cause. The annual arts festival, featuring performances and concerts by NP’s arts and cultural CCA groups, raised $112,246 for the polytechnic’s Student Aid Fund which provides support for needy students.