

# SCHOOL OF APPLIED SCIENCE

May 2020 – April 2022



**ADAPTING TO THE NEW NORM**

# CONTENTS

## **Vision and Mission**

**02**

### **Interviews with:**

- Principal & Chief Executive Officer
- Chairman, School Advisory Committee
- Director, School of Applied Science

**03**

**05**

**06**

## **School Advisory Committee**

**08**

### **Moving Towards Digitalisation**

**09**

- Digitalisation @ ASC
- Projects to Streamline Work Processes
- A Virtual Showcase: ASC Show 2021

**10**

**11**

**12**

## **Teaching and Learning**

**15**

- Overcoming Challenges with New Practices
- Teaching Innovations
- Preparing Our Students for a VUCA World
- Multidisciplinary Learning in ASC
- Differential eXperiential Programme: Success Stories
- Internships During the Pandemic
- Opportunities for Reskilling and Upskilling
- Teaching Awards

**16**

**17**

**19**

**23**

**24**

**25**

**26**

**27**

## **Our Students, Our Future**

**29**

- Holistic Development of Our Students
- Our Alumni Overcoming Challenges
- Serving the Community Through Guided Learning
- Student-Led Activities for the Community

**30**

**31**

**35**

**37**

## **Applied Research and Innovation**

**43**

- Evolving with the Current Situation
- Re-launching of COI-CHP
- New Collaborative Partnerships and Projects

**44**

**44**

**45**

## **Events Organised @ ASC**

**49**

## **Facts and Figures**

**53**

## **Appendices**

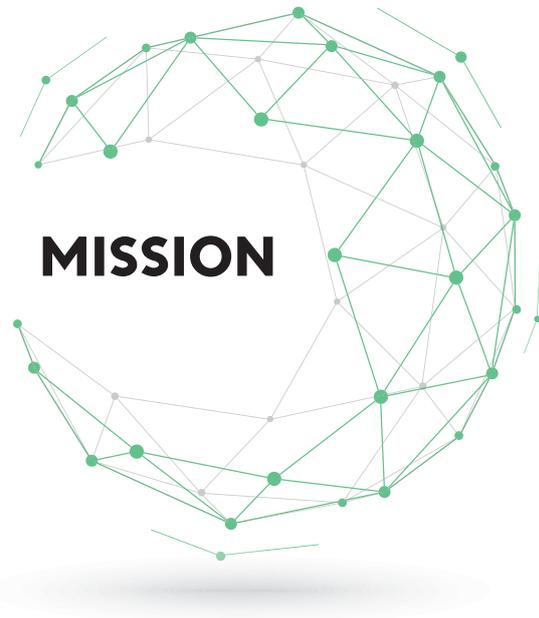
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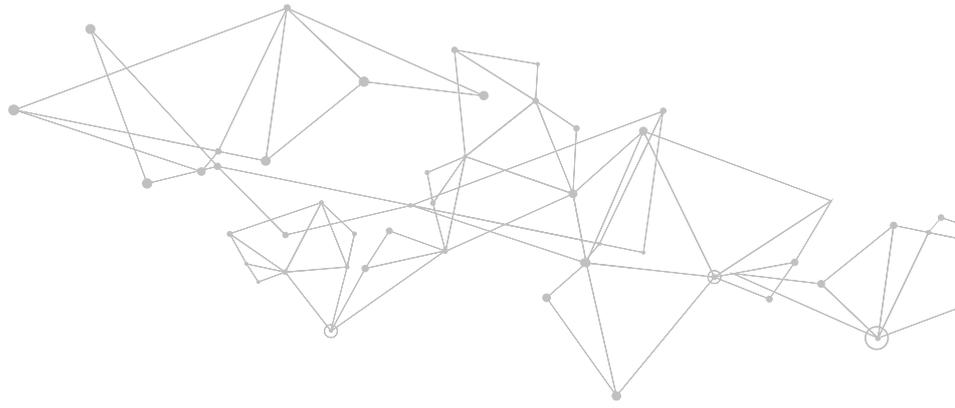
To be a leading centre for training, education and applied research in the chemical and life science

To continuously seek innovative ways to train and educate school leavers and the workforce, and to carve niche applied research areas that will benefit students, industry and the community



# AN INTERVIEW WITH MR PETER LAM

Principal & Chief Executive Officer,  
Temasek Polytechnic



*COVID-19 was a period of disruption, catapulting us into a world of new challenges and opportunities. How has Temasek Polytechnic (TP) adapted to the constantly evolving situation?*

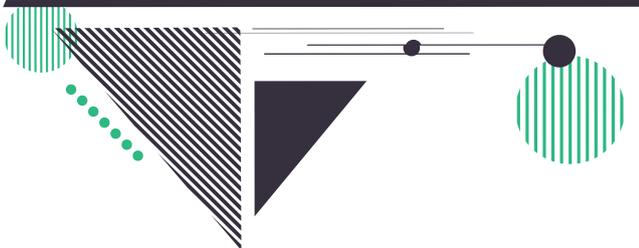
Instead of focusing on the challenges, TP focused on the opportunities it gave us.

The last two years were marked by several ups and downs in battling the pandemic. This pandemic has shown us how important it is to be resilient, agile and adaptable. This way, we can always support the learning needs of our students, regardless of the challenges posed by external circumstances.

Something good that came out of the pandemic, and not just for TP, was the accelerated pace of digitalisation. TP has embarked on digital transformation for several years now, but the pandemic accelerated it rapidly.

To facilitate home-based learning (HBL) and work-from-home (WFH) measures, online learning resources were developed almost overnight, alongside the digitalisation of work processes. Leveraging technology and with an open mind, TP colleagues worked hard on these areas and ensured that students' learning continued unabated. Our colleagues also responded enthusiastically to the "TP 100K Hours Challenge" in 2020, as part of our effort to encourage digitalisation and spur productivity. With such dedication, we managed to save 100K work-hours!

I am grateful to all our colleagues' commitment to digitalisation, innovation and productivity improvement despite dealing with the challenges of the pandemic. This commitment has enabled TP to continually transform ourselves to be a stronger institution.



*It was a forced transition for TP staff and students, especially the graduating cohorts. How did TP respond and extend support?*

Our approach was to roll out measures to support our students' immediate and long-term needs, and position both staff and students for the challenges and opportunities ahead.

One of our key initiatives to support students who were graduating in the midst of a pandemic was the "Career Kick-Start Package", to help graduates in their efforts to secure employment. This approach included short term jobs within TP to strengthen industry readiness, subsidised upskilling course to equip graduates with in-demand knowledge and skills, and career coaching.

For staff, there were several initiatives to safeguard their mental wellbeing, and to alleviate the additional costs of working from home. Ground up initiatives of peer support were celebrated too, through TP's "Peer Collaborative" recognition scheme. This is one where \$100 is set aside per year for each staff, and staff can apply to give that away in multiples of \$10 to recognise colleagues who are collaborative, accompanied by a personalised thank-you note. All these initiatives were well-received, as conveyed by staff through the Employee Engagement Survey (EES).

Despite these challenging circumstances, EES 2021 has shown that TP colleagues continue to find significant meaning and purpose in their work. If anything, we experienced what some referred to as "being closer, apart". Indeed, the pandemic seemed to have strengthened our education fraternity and brought us closer when we were physically more distant.

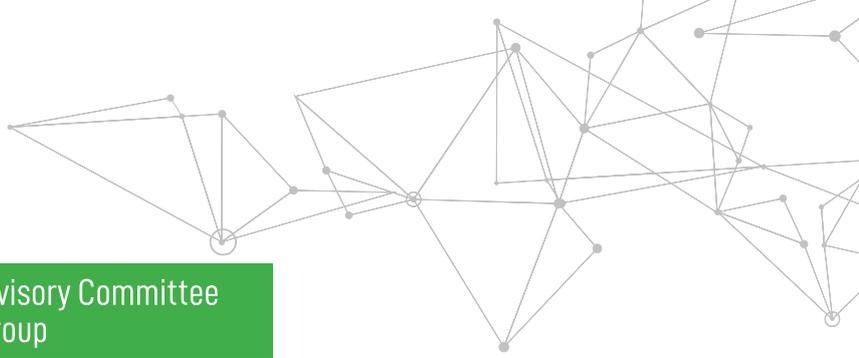
*Moving forward, what are some key areas that you would like ASC to focus on?*

I would summarise them in these few words: interdisciplinary thinking and partnerships.

As we return to normalcy in 2022, we should equip students with the necessary skills to navigate and thrive in a post-COVID-19 world. ASC has undertaken many initiatives to bring more value to our students in many areas. This includes industry attachments to ensure relevancy, and the development of CET that supports national imperatives, such as training for lab technicians to support lab tests during the pandemic. Moving forward, we will need to focus on incorporating interdisciplinary thinking in our curriculum for both PET and CET students. Interdisciplinary thinking is crucial to workplace success as most challenges in the workplace are interdisciplinary in nature. We need to equip our students with this important life skill of interdisciplinary thinking, so that they are able to view problems from different perspectives and appreciate the need to leverage various disciplines to help solve workplace problems.

Partnerships with the industry are crucial in the way we train students in the polytechnics. Some companies partner with TP as they see it as their corporate responsibility to develop and train students for the industry. Others do it so that they can have access to talents. Some want to leverage the creativity and energy of youths to provide fresh perspectives on industry problem statements. Regardless of the motivations of our industry partners, we must always find opportunities to demonstrate value to the partners and strengthen our partnership with the industry. This can be done through research or consultation projects to help companies be more effective and efficient, or supporting the upgrading of employees of our partners. When partnerships are strengthened, more resources, experience and ideas will be made available for us to tap on to benefit our students.

# AN INTERVIEW WITH MR ANDREW TJIOE



Chairman, School of Applied Science School Advisory Committee  
President & Chief Executive Officer, Tung Lok Group

*In your opinion, what has ASC done to keep up with changes in the industry?*

The speed of change around the world is unprecedented and emerging technologies continue to reshape labour markets. It is, therefore, essential to ensure agility in the way we adapt, to be very responsive to changes. ASC has always found ways to respond quickly to changes in the industry. In 2021, the school made remarkable progress in terms of graduate employability and also launched meaningful courses to support mid-career conversions and upgrading. This has plugged some gaps in the industry and uplifted unemployment.

I understand that ASC's employability stats is well above 90%. I'm still hoping that more ASC graduates can be joining my group of companies.

*Do you think our graduates are ready for the post-COVID world? Can you rate ASC's results over the past two years?*

No one can be fully ready for an uncertain future, but uncertainty can certainly be mitigated by strategies. ASC has been strategic in keeping up with the needs and demands of the learners. I've seen many exciting changes in the recent years. The preparation for the launch of the Common Science Programme in 2023, the opening up of elective offerings across diplomas with one crossing with the School of Engineering, and the latest move into interdisciplinary training. Coupled with early exposure to the industry, these will give ASC graduates a good head start in their careers.

I note too that ASC has been pushing ahead and breaking new grounds in offering innovative solutions to the industry. Despite the relatively small staff strength, the school has managed to secure almost \$3 million in external research grants, consultancy projects and licensing deals in the last two years. More importantly, the projects involved students, and allowed them to deepen their technical competencies through real-work projects even before employment.

Close partnerships with the industry nurtured over the years will continue to benefit everyone in the ecosystem - the industry, ASC staff and students. Today, ASC is leading the way in applied science education and training, and continues to attract very good quality students - a hallmark that ASC is doing the right things right.

*Moving forward, what advice do you have for ASC?*

Inculcate an open mindset in students when it comes to employment. Many seemed not to be able to appreciate the beauty in hard work, shying away from shift work and humble beginnings. Like Ann Landers once said, "Opportunities are usually disguised as hard work, so most people don't recognise them."

There are also opportunities in uncertainties, so taking on the "surer" path will only take one onto a predictable outcome that seldom offers the upside. Inculcating a greater appetite for experimentation and risk-taking, deriving joy from the journey of learning and discovering may well help them enjoy hard work and benefit from the experiences.

Not sure how ASC is going to achieve this, as it will take a change of mindset of both students and parents. Perhaps a greater recognition of walking the untrodden path, over the recognition of academic results may shift perspectives.



# AN INTERVIEW WITH DR GOH LAY BENG

Director, School of Applied Science (ASC),  
Temasek Polytechnic



*Being “future ready today” was the direction set for the school in 2020, to empower ASC staff in navigating ahead of changes through innovation. How is ASC doing right now?*

Being “future ready today” refers to a mindset really, of being proactive and innovative in “creating tomorrow” (also TP’s new tagline). With collective efforts, ASC is surfing well the wave of the pandemic...

The need to re-design teaching and learning practices culminated in two Educational Innovation Awards for ASC projects in 2021, one of which evolved into the TP Hyflex Digital Factory project, supported by TP’s Learning Academy and IT Services. The project aims to minimise absenteeism arising from COVID-19 related quarantine. This is achieved by leveraging technology to allow students the option of attending tutorials on site or in person. The project, endorsed by MOE, also vied for the UNESCO King Hamad bin Isa Al-Khalifa Prize 2021. Incidentally, the birthplace of the project idea was at a digital transformation course offered by the Civil Service College and INSEAD during the pandemic.

In essence, ASC’s investment in staff and digitalisation has paid off. Without which, the pandemic would have left us trying to catch up rather than being “future-ready”. One notable feat was our ability to offer over 200 meaningful in-house Major Projects (MPs), when companies could not provide them during the height of the pandemic. I also recalled our inaugural Centre Open House that was initiated during the pandemic. Though a virtual event, it met the pent-up demand for skills training, and translated into over-subscribed project and skills workshop participations when the Safe Management Measures eased up.

Interdisciplinary training is what we are onto next, to allow our students to experience such in-demand skills of the future. The wheel of “future-readying” at ASC is always turning...

*People are key assets of any organization. How did ASC support the well-being of staff and students during this pandemic?*

By being human...

Blurring of work-life boundaries and lack of face-to-face engagement took a toll on many who were working/ learning from home. Putting ourselves in their shoes and hearing them out through multiple channels helped us put in place initiatives that supported them.

At ASC, we reinforced TP's initiatives and made concerted efforts to further accommodate flexibility, emphasized on outcomes instead of outputs, taking a hard look at what truly mattered. In other words, not sweating the small stuff. Informal communities of practice/learning sprouted to lend peer support. Reporting Officers checked in regularly on the well-being of staff, while Care Persons did the same for students. Recognition awards such as the ASC Star Award and Teaching Award also saw words of appreciation pouring in for well-deserving colleagues. These were real morale boosters!

All of these were possible because of ASC's culture of care, collaboration and innovation. Being human was all it took.

*How is ASC aligning our growth areas to the nation's direction?*

Through our national Centres of Innovation and TP's Centres of Excellence, ASC continues to build capabilities in the areas of Food Security, Preventive Healthcare and Urban Sustainability. These underscore Singapore's '30 by 30' goal for food security, support healthy living through nutrition and complementary healthcare, and spur innovation in the space of waste upcycling, namely for mixed plastics and food wastes.

We are always tuned into the national imperatives and stand ready to support. I am proud to recap our launch of the RNA Virus Molecular-based Testing Training in September 2020, where more than 200 people were trained with the support of Temasek International and SkillsFuture Singapore. What we did was timely and impactful in mitigating the pandemic. We also worked hand-in-hand with the other polytechnics through train-the-trainer and equipment sharing arrangements, in case the scale had to be ramped up to meet demand. For this and many other collaborations, I am grateful for the camaraderie with my counterparts at the polytechnics and ITE.

*Any final thoughts?*

People-centred digitalisation. Going digital is meaningless if people are not in the centre of it all. We are in the midst of "re-imagining" our General Office, and re-designing office space for the future of hybrid work in the education sector. These are digital projects helmed by taskforces with representation across different job roles at the school. Design thinking is employed to ensure a people-centric and meaningful outcome. I am excited to be sharing our progress in these and other "future-readying" projects in the next issue of the biennial report.

Last but not least, I'd like to give thanks to my awesome colleagues who have selflessly supported one another through and through. Our people, our culture of Appreciating, Sharing and Collaborating (ASC) - is what makes this school very very special...



# 10<sup>TH</sup> SCHOOL ADVISORY COMMITTEE

NAME	ROLE
<b>MR ANDREW TJIOE, PBM</b> President & CEO Tung Lok Restaurants (2000) Ltd Tung Lok Group	Chairman
<b>DR GOH LAY BENG</b> Director School of Applied Science Temasek Polytechnic	Deputy Chairman
<b>DR CHANG SIOW FOONG</b> Group Director (Professional & Scientific Services and Community Animal Management Division) Animal and Veterinary Service National Parks Board	Member
<b>DR CHENG WEN-HAUR</b> Deputy Chief Executive Officer, Life Sciences and Operations / Chief Life Sciences Officer Mandai Wildlife Group	Member
<b>ASSOC PROF LITA CHEW SUI TJIEN</b> Group Director, Allied Health, SingHealth Head of Pharmacy, National Cancer Centre Singapore	Member
<b>MS FARHANA MANSOOR NAKHOODA</b> Senior Vice President Health Catalyst Asia Pacific	Member
<b>MS LEE CHOON-SIEW</b> Audit Director, Supply Chain GlaxoSmithKline Pte Ltd	Member
<b>MS LEE HEE HOON</b> Director, Allied Health & Community Operations Ng Teng Fong General Hospital	Member
<b>DR KEITH LIM</b> Group Head of Medical and Quality IHH Healthcare	Member
<b>MS MELIN LIM</b> Senior Director, Urban Food Solutions Division Singapore Food Agency	Member
<b>MR LU JIN PING</b> Managing Director, Hitchins International Pte Ltd President, American Concrete Institute Singapore Chapter	Member
<b>MR MOCK SIEW FAI</b> General Manager (Plant) Mitsui Phenols (S) Pte Ltd	Member
<b>ER. LUCAS NG HONG KIANG</b> Senior Advisor & Head of Sustainability Petrochemical Corporation of Singapore (Private) Limited	Member
<b>MR SNG MENG LIANG</b> General Manager Aastar Pte Ltd	Member
<b>MR JEFFREY TAN CHOONG CHER</b> Co-Founder (The New Age Fishmonger) DISHTHEFISH Pte Ltd	Member

# MOVING TOWARDS DIGITALISATION



# DIGITALISATION @ ASC

## Dr Loh Gin Hin

Deputy Director, Quality Development & Planning  
Domain Chair, Education Research & Development

ASC as part of ONE TP and Public Service, embraces digital transformation of the 3Ws in Public Service – Work, Workforce and Workplace. In this regard, ASC encouraged our staff to initiate or embark on various digitalisation projects that would increase their work productivity and provide opportunities for digital upskilling.

Some completed digitalisation projects in 2021 were:

1. Conversion of hardcopy forms to e-forms for technical support
2. Use of digital technology for chemical inventory
3. RPA of student attendance warning letters
4. Personalisation of students' learning reports and email delivery of certificates
5. Using electronic forms to simplify communication process with clients and test participants, and Doodle for scheduling of participants
6. Dashboard visualization of photocopiers' paper usage
7. Hybrid learning in ASC: to "pandemic proof" our T&L practices

In addition to the above projects, ASC embarked on predictive analytics in phases by drawing insights from past data for the purpose of value-adding to our diploma courses. This is an on-going project that will provide insights to the school on various Education and Career Guidance (ECG) and on-going learning support for current and prospective students.



# PROJECTS TO STREAMLINE WORK PROCESSES

## Implementation of Clockgogo for Attendance Taking

**Mr Louis Tay**  
Manager, Digital Administration

In the past, the attendance of in-house student interns had always been taken manually and it was very time consuming. It required the use of a 'clock in/out' machine and hardcopy timesheets. The machine had to be switched on the entire day and timesheets needed to be printed. When it was close to the time for the interns to sign in or out of their work duties, there would usually be a long queue at the General Office. Students often waited for twenty minutes to complete this process, and the General Office would often be left in a mess. Staff too, had to be on duty to verify that the interns were only clocking in/out their own timesheets and not their friends'. Furthermore, the internship supervisors had to later collect these stamped timesheets to monitor their students' attendance.

With the implementation of the new attendance system that uses the Clockgogo mobile application, the 'clock in/out' process has benefited both staff and students. Students can now comfortably use their mobile phones to clock in/out their attendance at their respective labs without the need to visit the General Office. This helped maintained a tidy and less crowded General Office where staff too need not be on duty. Internship supervisors can also monitor their interns' attendance by generating monthly reports on their mobile phones or laptops within minutes.

In total, about 180 man-hours has been saved by staff each year with the implementation of this system. Apart from saving manpower, ASC would also be saving papers, printer cartridges, hardware maintenance, and electricity. Thus, the Clockgogo app has helped digitalise and ease the students' attendance-taking process.



## Using Robotic Process Automation (RPA) for Administrative Processes

**Mr Edwin Cheng**  
Senior Executive, Digital Administration

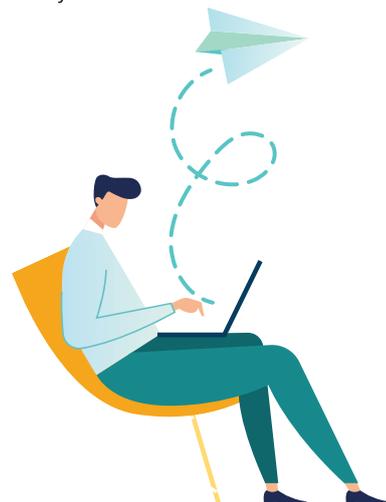
For many years, during term time, the General Office has had to send student attendance warning letters to parents via snail mail. This simple task used up lots of paper, envelopes and toner. Moreover, it consumed much time to fold, slot and seal the letters in envelopes before mailing. The General Office then decided to automate and digitise the issuance of warning letters by programming this digital process through RPA.

Using RPA and a database with the contact details of parents, the project aimed to:

- ensure that either e-mails or hardcopy mails reach the parents;
- reduce number of printed and mailed warning letters;
- reduce expenses on papers, envelopes, toners and postage; and
- reduce staff workload and time to focus on other tasks.

With the implementation of RPA, all project aims were achieved. 80% of the warning letters are now e-mailed to parents automatically. All that remains is about 20% of warning letters that are printed and done automatically

by RPA where parents' e-mail addresses cannot be found in the database. By reducing the number of hardcopy mails to about 20%, the General Office is saving an estimated 180 manpower hours and \$700.50 per academic year.

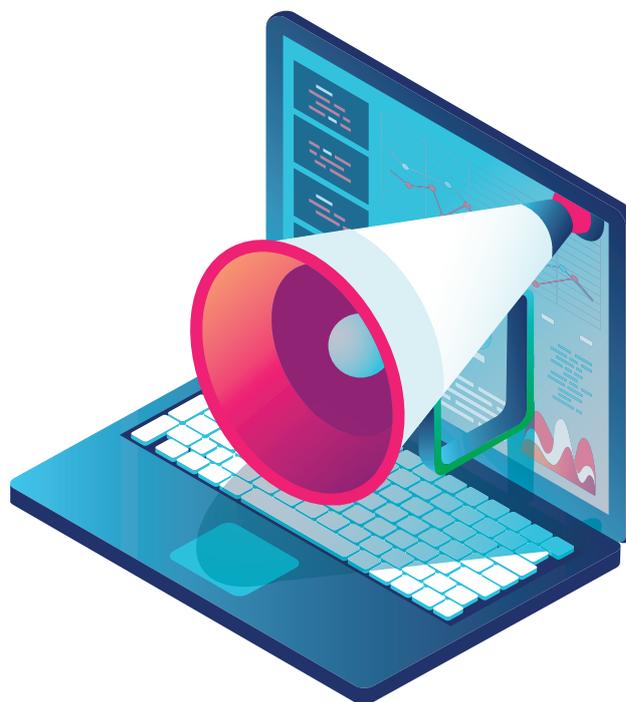


## Using Digitalisation Tools for Academic Processes

**Dr Miao Huang**  
Course Chair, Diploma in Chemical Engineering

Academic administrative processes were also enhanced through digitalisation. The teaching team from the Diploma in CHE used a variety of digitalisation tools to help streamline several processes. Conventionally, to maintain timely contact with students and alumni staff would usually use Whatsapp or email to disseminate information, requiring lots of time and manual effort. In order to make this process more efficient, RPA was adopted to send personalised WhatsApp messages to students and alumni instead. Moreover, instead of sending generic emails to all students and alumni, an Excel macro is being used to send personalised emails to them, which enhances the outreach experience and improves connections. In 2021, the developed RPA script was shared and experiential workshops were conducted for the TP community.

Another time-consuming task is the compilation of academic results. It is also that is prone to human errors. In order to increase the efficiency of this task, Python was used to automate the compilation of academic results, while PowerBI was deployed to visualise students' performance. The use of these digitalization tools allows greater ease of monitoring students' performance, and thus aided the identification of students that required additional academic support. This was then piloted across several subjects and shown to be effective in helping students and very useful in reducing the time spent on these processes.



## Innovating Learning Chatbots

**Dr Miao Huang**  
Course Chair, Diploma in Chemical Engineering



The Diploma in Chemical Engineering (CHE) teaching team is actively exploring the development of Chatbot in education. Mr Sim Kian Seng (CHE Alumni) worked with Dr Maurice Ling to evaluate the quality of documentation and the ease of installing Python-based chatbot engines that were released between 1 January 2020 and 15 February 2021. Their findings suggested that the majority of recently available Python chatbot engines were not ready for widespread use. To inject innovation into the Chatbot research, Mr Bong Chee Keong championed a research project titled "Personalized Chatbot as Learning/Teaching Assistant for Engaging Home-based Learning". It was funded under the TP Research Fund, and successfully completed in 2021.

In 2021, Dr Miao Huang, Dr Leong Meng Fatt and Mr Bong Chee Keong secured a project funding from the Workforce Development Applied Research Fund to work on "Developing personalised Chatbots and evaluating their effectiveness as teaching assistants in adult learning". Since then, these education research projects have also fostered positive collaborations between the various schools at TP, namely ASC and IIT, as well as ENG and HSS teams.

# A VIRTUAL SHOWCASE: ASC SHOW 2021 – BRINGING SCIENCE TO LIFE

**Ms Petrina Lim**  
Head, Translational Projects

A complete move into the Virtual Reality (VR) space! That was what ASC did in 2021 for its annual project showcase event.

Despite the many on-going Safe Management Measures, the school tried to maintain its rapport with the industry partners and stakeholders (including secondary schools). Like most, ASC was not spared from making that switch into the digital space for such an event. The school took the opportunity to venture into the digital space to present the following highlights:

- Tour of virtual laboratories and learning spaces
- Discover projects by staff and students
- Interact with equipment and characters
- Peep into our 'real' school via videos

Two final year students from the Diploma in 3D Interactive Media Technology, School of Engineering, were engaged as interns and they designed the entire virtual layout and re-created the 3D specialised facilities. They even re-created complex industrial-grade equipment and added interactive features in the virtual laboratories to inject some element of fun and play!

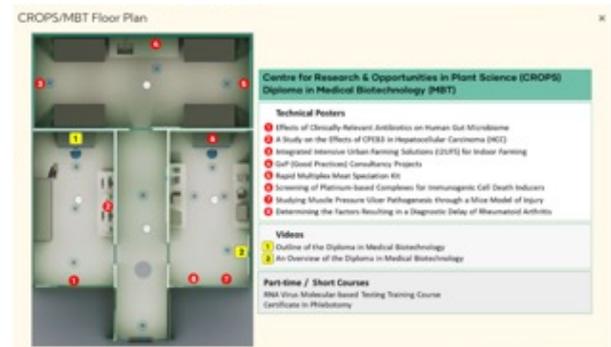
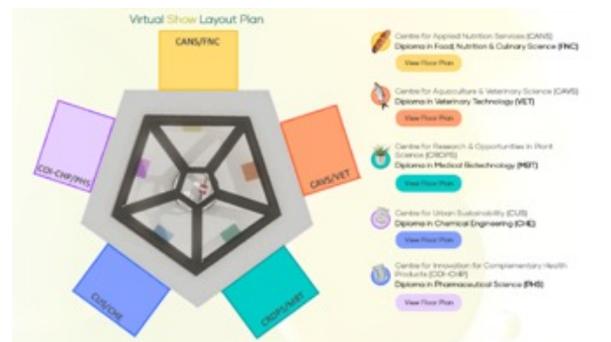
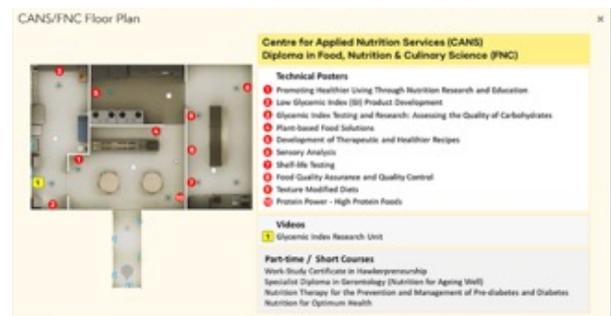
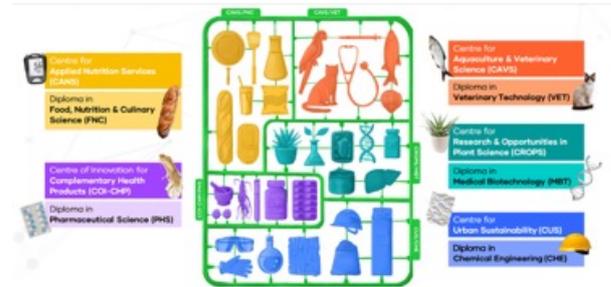
Built using the Unity WebGL application, its integration onto Temasek Polytechnic's website was certainly a first-hand experience for all. Supported by the Corporate Communications Department, the students' VR creation was finally launched in April 2021 after many rounds of beta-testing to ensure that the UX and UI were carefully thought through.

Here are some snapshots of the ASC Show 2021 from the website to the VR space:



Visitors were first introduced to the five technical capability clusters that were formed between ASC's technology centres (or Centre of Excellence and Centre of Innovation) and the diploma courses. By colour coding each cluster, this formed the basis of the floor plan and interior design for navigation purposes and to guide visitors through the virtual space.

The floor plans allowed visitors to have a snapshot preview of what to expect in the various spaces, and to decide their tour itinerary.





Visitors were greeted first by the event mascot, a robot called Abel. He would provide a quick guide on where to go, settle any FAQs and collect feedback for the event.

Moving off to any technical cluster, visitors would notice technical posters mounted on the lab walls, which visitors could enlarge to read. Furthermore, they could even pose questions to the Project Leader.

Some of the specialised laboratories, which are equipped with industrial grade equipment or plants, had similar re-creations in 3D VR mode. To engage

the different types of visitors, there were added features such as having movable gadgets/parts of the equipment and embedded videos around the VR space. Being able to 'play' with these features added to the novelty of the visitor's learning experience throughout their tour.

This virtual show was certainly a first for the entire school in understanding the effort and process of creating a 3D VR experience from scratch. It was definitely also a proud moment for interns from TP's School of Engineering to launch their project for TP. Kudos to Sukma and Luke for this successful project!



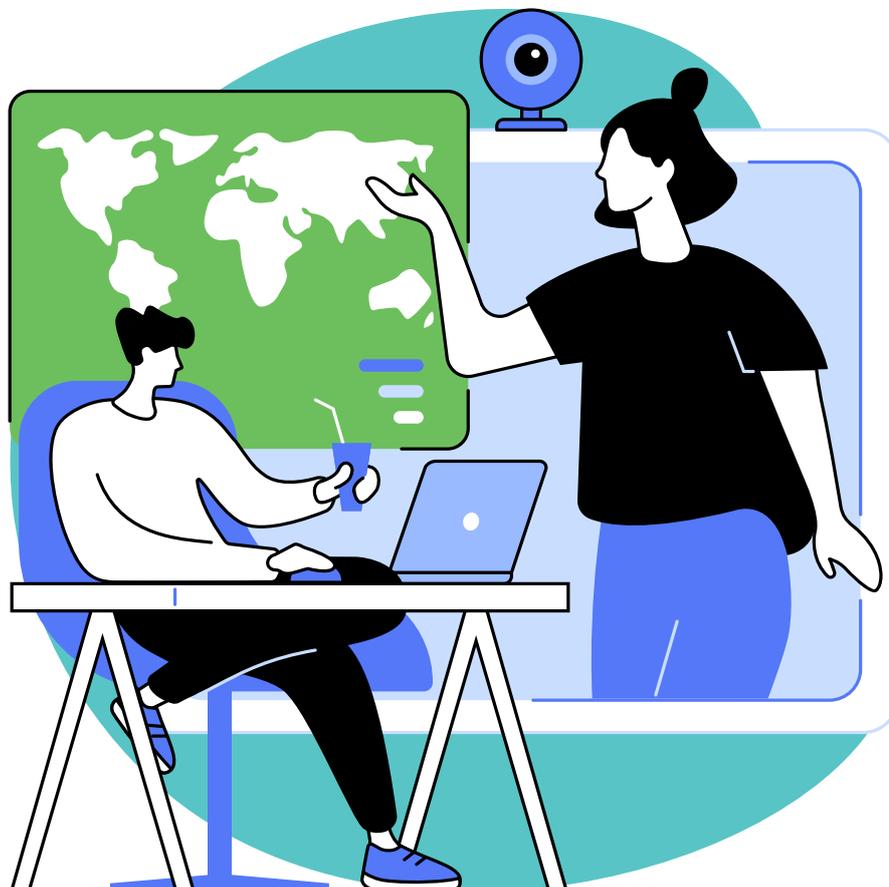
# TEACHING AND LEARNING



# OVERCOMING CHALLENGES WITH NEW PRACTICES

## Dr Loh Gin Hin

Deputy Director, Quality Development & Planning  
Domain Chair, Education Research & Development



When Singapore entered the COVID-19 circuit breaker lockdown in April 2020, it was a challenging time for staff and students in ASC. While Singapore is a city-state with high internet connectivity, learners and academic staff were surprised when the country pivoted to a full online Home-based learning (HBL). Schools in TP were required to comply with the TP's COVID-19 Safe Management Measures (SMM) Advisory in terms of percent footfall on campus to ensure that there no learners were left behind. While academic staff remained stoic throughout all the reopening phases in 2021 and 2022, they had to adjust their teaching and learning practices to comply with rapidly changing SMM.

What helped ASC to adapt quickly to engage students during Home-based Learning is the on-going emphasis to employ active learning approaches (e.g. problem- and project-based learning), e-tools (e.g. ClassPoint, Padlet), as well as initial insights and experiences on hybrid and flexible learning (also referred to as HyFlex Learning). HyFlex Learning typically combines traditional face-to-face classroom instruction with online learning, blurring the boundary between the physical (face-to-face) and virtual environments (like HBL).

The ASC-Learning Academy (LA) School's HyFlex Learning was the first reported case used in TP. The

ASC-LA team employed innovative strategies to pivot the school's teaching and learning practices with active and sustained hybrid class engagement during the COVID-19 pandemic while fostering strong buy-in from academic staff and learners. The project was designed as part of ASC's digital transformation. With positive feedback from stakeholders, it led to further investment of higher technology to enhance the experience. E-tools such as ClassPoint, MS Form, and Padlet continued to be useful during synchronous online and onsite lessons.

Despite constraints and challenges posed to teaching and learning during the COVID-19 pandemic, ASC did not see a dip in students' performance despite moving from a 100% physical learning environment to a Hybrid Learning environment. Moreover, student learning was not disrupted during the COVID-19 reopening phases with HyFlex classes. In fact, ASC was able to support the academically at-risk learners, and those without optimal learning environment at home (e.g. unstable WIFI, space constraint) through HyFlex Learning (onsite). Next, the HyFlex mode of teaching also widen the lecturers' repertoire of teaching skillsets, which better position them within the context of changing landscape in education and digital transformation in Singapore. Lastly, TP recognised the ASC-LA HyFlex Learning project as one of its Educational Innovation Award 2021 recipients.

# TEACHING INNOVATIONS

## Interactive Teaching Tool – ClassPoint

**Mr Oliver Chang**

Lecturer, Education Research & Development

The adoption of ClassPoint to increase tutor-student interactivity when using Microsoft (MS) PowerPoint for teaching and learning started off as one of TP's Technology Innovation Fund (TIF) project. Though the primary presentation software used in lessons is MS PowerPoint, it was not fully optimized for teaching, especially when teaching in today's digital classrooms. Hence, ClassPoint, an add-on option for MS PowerPoint was introduced and implemented to empower tutors to teach interactively. This application also allowed tutors to build a two-way communication with students through their learning devices for both face-to-face lectures and synchronous online lessons.

Between 2020 and 2021, ASC staff across 2 diplomas implemented innovative ways to use ClassPoint in 6 subjects. A total of 186 students experienced the use of ClassPoint in their lessons. This project received many positive feedback from students with majority appreciating the increased interactivity made possible by ClassPoint. Many felt more self-motivated and could better understand the subject content as ample feedback were given by the tutors. This helped to boost students' motivation and learning.

Likewise, tutors too, gave positive reviews as it was a breeze to use with no need to have and master a separate software. ClassPoint had features that could be accessed seamlessly from MS PowerPoint. Tutors just needed to use the ClassPoint interactive functions such as interactive quiz, digital whiteboards, and mini assignment during their tutorial lessons to enhance students' learning. Moreover, all annotations, whiteboards, and students' responses could be saved

natively in PowerPoint too. Tutors could then review and track every student's contribution and use the information to design subsequent learning activities.

ClassPoint certainly has immense potential as a teaching and learning tool. TP's Educational Innovation Award 2021 that ASC received for the implementation of ClassPoint clearly attest to its effectiveness as a tool to enhance interactivity in learning. Since late 2021, ClassPoint was made available to all TP staff for work-related purposes.

*"The use of ClassPoint during the tutorial sessions allows us to stay focused all the time and it is very engaging. It also allows my tutor to give us feedback during practical classes."*

**Year 1 Student**

Diploma in Veterinary Technology

*"I strongly believe that this has helped me throughout this semester as it sort of "forces" me to do the tutorial questions since the ClassPoint activity since everyone is required to participate. Furthermore, by doing the tutorial questions, I now have a much deeper and better understanding of the subject."*

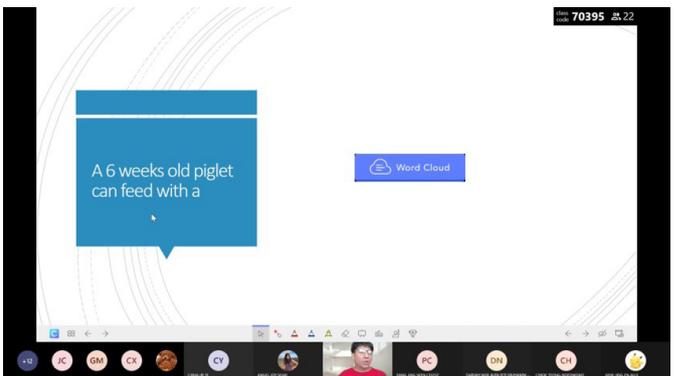
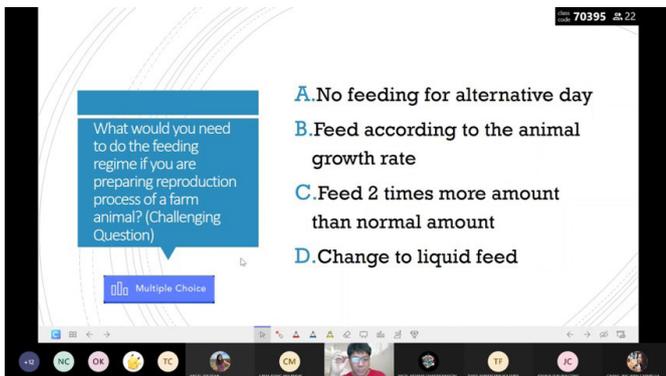
**Year 1 Student**

Diploma in Veterinary Technology

*"It is very simple to use; it allows me to change my tutorial worksheet into PowerPoint format to enhance my student learning through ClassPoint."*

**Mr Oliver Chang**

Lecturer, Diploma in Veterinary Technology



## Hybrid Flexible Learning - HyFlex Learning

**Mr Oliver Chang**  
Lecturer, Education Research & Development

HyFlex Learning or hybrid flexible Learning was implemented at ASC in October 2020. It is an instructional approach that enable both online and on-site students to attend synchronous lessons during the COVID-19 pandemic. There is a need for HyFlex learning as this model allowed students to attend synchronous tutorial lessons online without missing lessons when they were under quarantine order (QO), stay-home notice (SHN) or leave of absence (LOA).

Tutors would conduct tutorial lessons on campus using wireless earphones and laptops to engage the students in class, whilst some would also join in remotely from their homes. This arrangement allowed students to have the flexibility and choice to attend their classes either online or on-site. In fact, both the on-site and online students benefited from the HyFlex learning model. The on-site learning allowed social interaction and peer-learning amongst learners, as well as the opportunity for them to speak to their tutors directly for any clarification.

In AY2020/2021 October semester, a pilot study was carried out among four diploma courses (CHE, MBT, PHS and VET) to implement the HyFlex learning on four subjects with four tutorial classes. The study employed two different online platforms: Webex Smart/ Spark Board for CHE and VET, and MS Teams for MBT and PHS. For each subject, HyFlex was also implemented

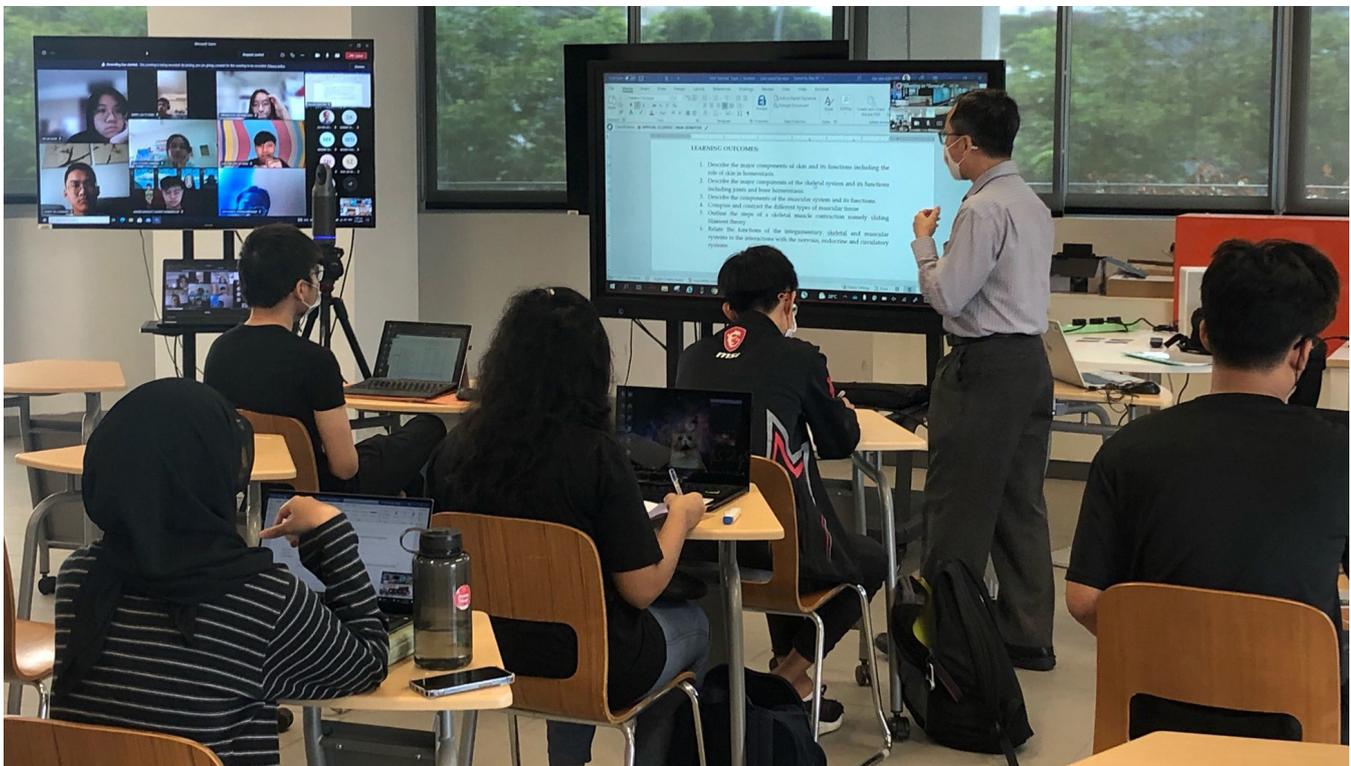
in 3 to 5 tutorial lessons. Subsequently, in AY2021/2022 April and October Semesters, more subjects saw the HyFlex learning to be successfully implemented. Since then, ASC presented this HyFlex (hybrid) learning approach at the LA Fest 2021 and made available its learning resource under "Engaging Students in HBL" to all TP colleagues. This HyFlex Learning model project is currently part of the TP Digital Factory Initiative to improve the current HyFlex classroom model using high-technology equipment.

*"With this Hyflex setup, it makes it easier for tutors to manage and engage students who are on campus and at home, without worrying if we don't appear on the video or if students cannot hear what is going on. It's also giving students greater flexibility to plan their learning needs."*

**Ms Loh Mun Jo-anne**  
Lecturer, Translational Research Project

*"I had a great experience with the Hyflex Learning as it enabled flexibility in my learning, to be either online via MSTeams or face-to-face in the classroom; It also enabled me to somewhat experience what poly life was like before the pandemic."*

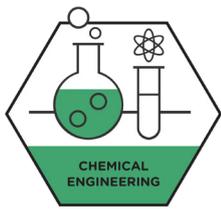
**Nico Mier Aro Piopongco**  
A21M1, Diploma in Medical Biotechnology



# PREPARING OUR STUDENTS FOR A VUCA WORLD

**Dr Miao Huang**

Course Chair, Diploma in Chemical Engineering (CHE)



Like many industries, the oil and gas sector is profoundly affected by the COVID-19 pandemic. It brought about the double whammy of a supply shock with an unprecedented demand drop. This has greatly impacted the job market for the oil and gas industry.

To meet the diverse challenges, oil and gas companies swiftly repositioned their operating models. They arranged for work to be delivered remotely, reduced staff and adjusted shifts to enable safe distancing. This also accelerated the need to train workers in automation and new technologies to meet production needs.

This meant that to better prepare our students to adapt to the new skillsets required by the industry, they had to be trained in digitalization, automation knowledge and sustainability technologies. As such, CHE had incorporated the training of these new skillsets into their Elective Cluster (EC) in Chemical Processing. A new chemical pilot plant with automation features will be used to teach students about plants and their operations, thus offering students a powerful learning experience. The chemical pilot plant can also be operated remotely with Distributed Control System technology. Renewable energy can be produced from this facility.

Though the oil and gas sectors seemed to be suffering due to the pandemic, the pharmaceutical manufacturing and semiconductor industry are expanding in Singapore as more vaccine and health-related products are being produced. Electronic chips manufacturing and automation industry grew rapidly, resulting from the pandemic that contributed to create more career opportunities for CHE graduates.

Apart from the diploma EC in Chemical Processing, CHE also offered three other ECs for graduates to tap into the job markets of various industries. These ECs are: Applied Chemistry, Pharmaceutical & Biologics Technology, and Semiconductor Technology. The most recent new EC, Singapore University of Technology and Design (SUTD) Pathway Programme, approved in 2021 became the 5th EC for CHE. It is hoped that such a programme will provide students the advantage should they intend to pursue further studies in SUTD.

Indeed, for students to be prepared to work in a volatile world, the course team has to focus on strong technical skills training where the teaching and exposure to digitalization and sustainability must be delivered even outside formal curriculum. This includes experiential skills learning which CHE intends to explore with its new chemical pilot plant that is currently under construction. Additionally, the diploma is actively engaging industry partners in collaboration, mentorship, scholarship, internship opportunities to provide quality training to the students.

**Mr Zhang Pengchi**

Course Chair, Diploma in Food, Nutrition & Culinary Science (FNC)



The COVID-19 pandemic and the Circuit Breaker (CB) measures caused a significant impact on the food manufacturing and F&B service sectors in Singapore. During CB, Singapore's food value chain was disrupted from transportation, warehousing, procurement, packaging to

inventory management. It inadvertently affected our food supply, quality, and accessibility. Moreover, the restaurants, hotels, and catering services saw a drop in sales by up to 52 per cent during the CB period. Though after CB, the food industry and F&B sector gradually recovered to about 74 per cent of pre-COVID levels, this rebound was not across the board as some food companies continued to face poor sales performance below pre-COVID levels. Worse yet, this reduced the job market in the food industry and F&B sector and affected the graduates from the Diploma in Applied Food Science & Nutrition (FSN) and Diploma in Baking and Culinary Science (BCS). According to the Graduate Employment Survey (GES) 2020, only 66.7% of FSN fresh graduates and 88.9% of BCS fresh graduates were employed after six months of graduation or post-National Service.

This outcome in such challenging times led the course team to assist the graduating cohorts in order to raise the employment rates. ASC embarked on training students in three areas, food, nutrition and culinary science to augment students' resilience and adaptability. The course team also invited more industry speakers and alumni from diverse sectors like food manufacturing, bakery industry, central kitchen and flavour house, to broaden students' career perspectives and increase job opportunities.

These talks gave greater exposure to students on the diversity of emerging food-related job areas such as food security and sustainability, plant-based proteins, lab-grown meats, etc. The course team also gave strong career guidance and ample counselling sessions to the fresh graduates to help secure jobs. Indeed, the staff were successful in job matching in notable instances and along with the graduates improved preparedness for the current job market after CB led to a marked improvement in the GES 2021 where 100% of the FSN and BCS graduates, who did not seek further studies, received gainful employment.

## Dr Chan Giek Far

### Course Chair, Diploma in Medical Biotechnology (MBT)



With the COVID-19 pandemic, the demand for biotechnology companies to develop and manufacture diagnostic test kits rose sharply. Nationwide, new clinical laboratories were built, and companies increased their hiring of diploma holders to work as

medical laboratory technologists. They had to perform PCR tests on patients' specimens and report COVID-19 results. This created a strong employment demand for MBT graduates as the course provided their learners the knowledge and skills to work in both the biomedical science and biotechnology industries.

Additionally, to support the demand for more specialised laboratory technicians, a new short course on RNA Virus Molecular-Based Testing Training Course was launched in 2020. This 2-week course covered the fundamentals of knowledge and skills for work in a molecular diagnostic laboratory for virus detection. To date, 243 participants underwent the training. These learners also received employment opportunities in DSO National Laboratory, Parkway Health Laboratory, etc.

To meet the industry needs, MBT introduced a revised course structure that trains students in both biotechnology and biomedical science skillsets that will enable them to either work in biotechnology research and industry or prepare them to work in the clinical

laboratories. Students would have the opportunity to learn the skillsets in emerging areas in their third year. They can opt from several industry relevant elective clusters, including Translational Medical Science, Clinical Laboratory Practice, Functional Plant Technology or Bioinformatics. This will equip students with the fundamental skillsets which are in demand after the COVID-19 pandemic.

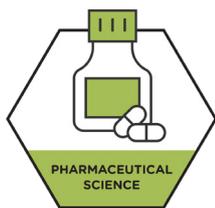
Moreover, the COVID-19 pandemic also revealed the reality of global inter-connectivity and the importance of understanding the One Health concept where the states of health of humans, animals and the environment are closely linked. As such, a core subject, Basic Microbiology, was revised to include the One Health concept in order to build an awareness among students regarding the close connections between humans and the state of health of organisms and communities.

In response to yet another growing industry demand, the high-tech farming industry, a new Elective Cluster on Functional Plant Technology was created in 2021. This introduced a subject on Plant Cell and Cultivation Technology that aims to train students with knowledge and skills needed for innovative development, cultivation and application of functional plants. This would ultimately add value to plant research, food production and the therapeutics industries.



## Dr Foo Chun Shin Maisha

### Course Chair, Diploma in Pharmaceutical Science (PHS)



2020 saw massive economic disruptions due to the COVID-19 pandemic. The reality of a VUCA world prevailed. Since the start of the pandemic, two batches of PHS students completed their graduation only to face diverse challenges. Thus, it was understandable that these

graduates expressed some apprehension.

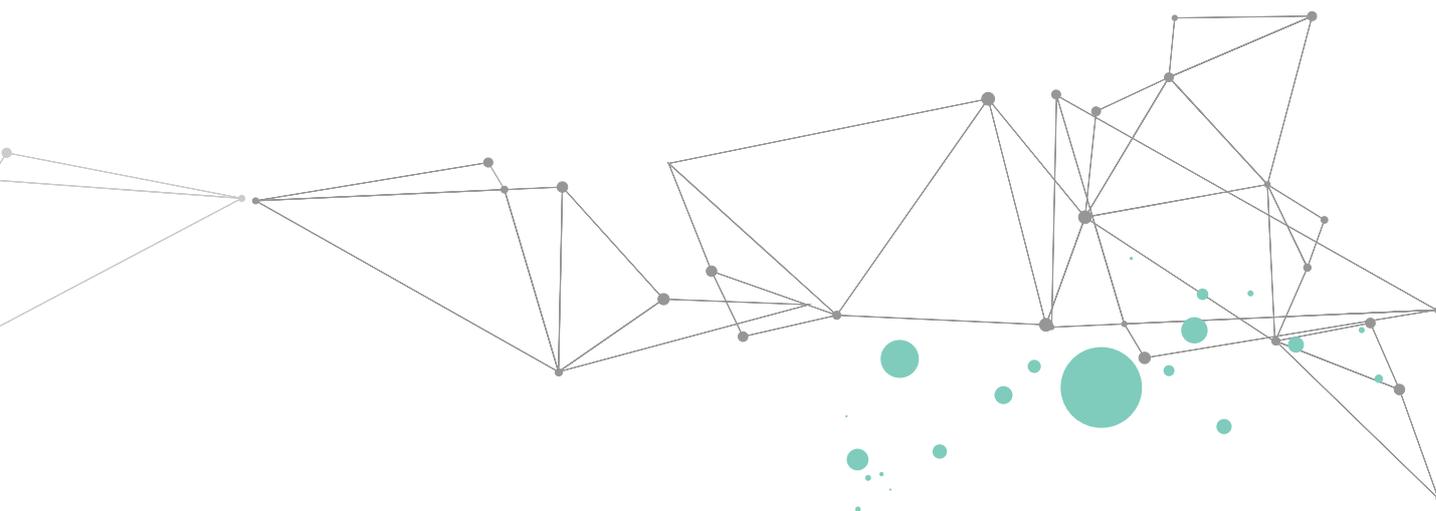
Though the pandemic's effects on healthcare and pharmaceutical industries were palpable, the biomedical manufacturing cluster remained resilient with an output that expanded 20.1% per cent in November 2021, while the pharmaceuticals segment rose 31.2% with higher production of active pharmaceutical ingredients.

Graduates looking to join the pharmaceutical manufacturing industry were thankfully rewarded with a variety of career options to support end-to-end production of many biomedical products including vaccines. Such were several multinational pharmaceutical companies like Sanofi, Thermo Fisher and WuXi Biologics that announced their investments to build manufacturing facilities in Singapore. Graduates could also seek opportunities to develop themselves in new technologies such as gene therapy, stem cells treatment, cancer immunotherapy and 3D printing as Singapore continues to build such capabilities.

In the healthcare sector, the manpower demand for various job roles, including pharmacy technicians also

rose due to Singapore's growing ageing population, and the challenges as a result of COVID-19. During the pandemic, the pharmacy profession expanded its public health responsibilities. For instance, medication delivery services in hospital pharmacies scaled up to ensure that patients were supplied with adequate medication before their next check-up; and teleconsultation services also increased to educate and counsel patients on their medication. Many pharmacists and pharmacy technicians were also deployed to the mobile medical care facilities as part of the nation's frontline response. In hindsight, PHS graduates can also look forward to more rewarding and exciting career opportunities in the healthcare supplies companies, drug regulatory bodies and research institutions to apply their pharmaceutical science knowledge and skills.

With or without COVID-19, it is imperative to be prepared for a VUCA world. ASC emphasizes to students the importance to acquire qualities of adaptability, proactivity and intellectual humility to master technologies in order to enhance skills to deliver successful outcomes. All students must continue to learn new skillsets to meet the demands of the future workforce as job functions evolve rapidly. Lastly, they should also adopt a lifelong learning attitude to navigate in an ever-changing landscape and improve their problem-solving and critical thinking skills as workplaces become increasingly complex and challenging.



## Ms Koh Seow Wei, Valerie

### Course Chair, Diploma in Veterinary Technology (VET)



During the COVID-19 pandemic, pet ownership rose as more people acquired pets, possibly for companionship while being more home bound and/or working from home. On 16 October 2021, Channel New Asia reported that the American Pet Products Association

noted that about 12.6 million US households adopted a new pet after the COVID-19 outbreak was declared a pandemic in March 2020. This also triggered a spike in the pet sale prices. However, this increased interest to adopt pets was ultimately dampened by import restrictions.

Ironically, the number of veterinary professionals is much lower than the existing pet population and the high demand for veterinary services. Additionally, as pet owners have higher expectations since their pets are regarded as family, veterinary professionals face added pressure. Besides the increased workload for veterinary practices, professionals must grapple with evolving COVID-19 safety protocols, concerns of less support and staff, and increasing patient load. Other work challenges included: varied work hours, lack of clarity regarding "essential" care, uncooperative or financially strapped clients, and concerns about transmitting COVID-19 to their pets or their pets being infected by the virus. Other pandemic-induced stressors such as social isolation and

financial burdens due to family job losses worsened the psychological burden of vet care employees.

Since the start of the COVID-19 pandemic, the mental health of the nation had been adversely affected and particularly tough for frontline human and veterinary care workers who faced daily exposure to the virus to provide essential services to owners and their pets. On 7 May 2021, BluePearl Pet Hospital (Mars Petcare US Inc.) predicted that the mental health of veterinary professionals will continue to deteriorate. This is even after this same population has overcome an unprecedented time of COVID-related stress, fear, and upheaval, both in practice and at home.

Thus, to better prepare the graduating cohorts to face these challenges, ASC organised dialogue sessions and discussion forums with some working alumni in private veterinary practices. They raised some common challenges such as compassion fatigue, cyberbullying, exhaustion and stress. This led to wellness workshops that were conducted by school counsellors to raise awareness and to impart some strategies on wellness management. Resources were also provided to help students cope with these difficulties prevalent in the veterinary industry. With these supporting activities and resources, the students were mentally better prepared for their careers in the provision of quality pet care.

# MULTIDISCIPLINARY LEARNING IN ASC

**Chew Ming En Lucas (A18F1)**  
Diploma in Medical Biotechnology

Lucas took the Aquaculture Elective Cluster offered by the Diploma in Veterinary Technology. He scored a Distinction in Aquaculture Technology, and an 'A-grade' in Aquaculture Product Quality Technology. Lucas also received the EXPLORE! Young Marine Scientist Research Award in recognition of his outstanding proposal in exploratory marine science research in 2020. This enabled him to carry out his Major Project titled 'Ocean acidification matters: the effect of low pH on the reproductive success and larval development of giant clam, *Tridacna crocea*' at St John's Island National Marine Laboratory (SJINML). Lucas also did his internship at SJINML where he acquired new aquaculture skills to rear giant clams. Following which he impressed his supervisor on both his Major Project and internship performance, which he scored full marks for the latter when appraised by his supervisor.



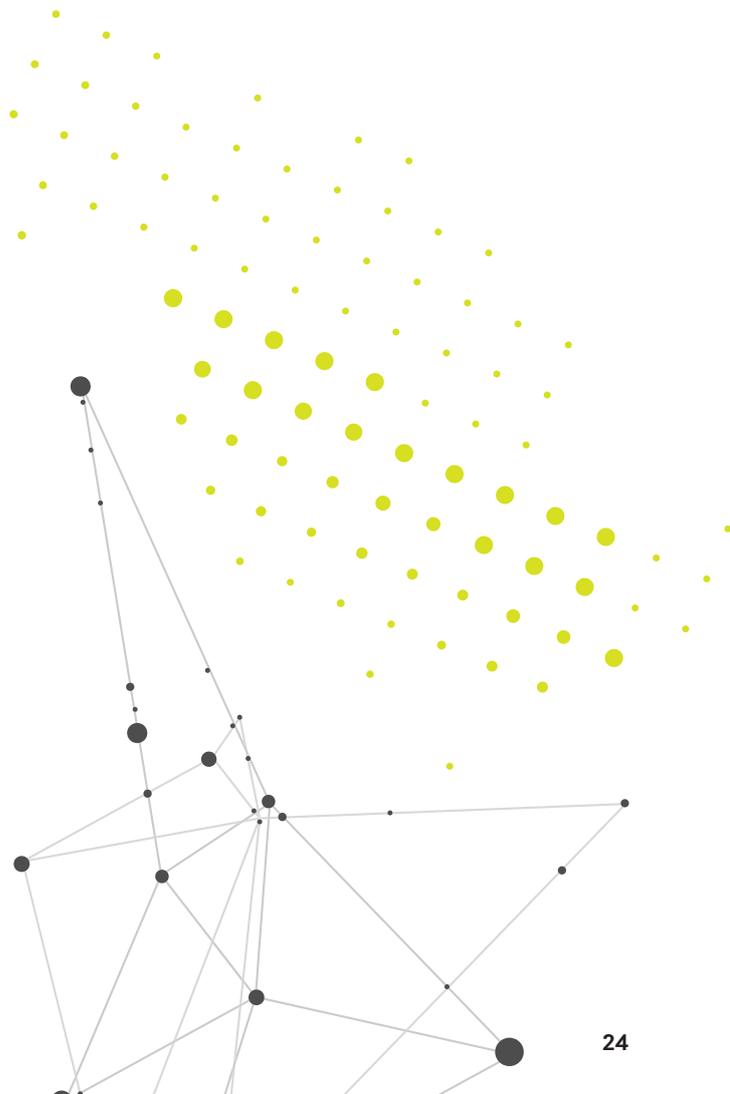
Watch Lucas' interview here.



**Genevieve Pan Jing Wen (A19D3)**  
**Low Jing Hui (A19D3)**  
**Natasyah Sari Binte Mohamed Noh (A19D2)**  
**Nur Muhammad B Abu Bakar (A19D1)**  
**Teo Jit Yong (A19D3)**  
Diploma in Chemical Engineering

They were the first batch of students that took the Semiconductor Technology Elective Cluster, a collaboration between School of Engineering and CHE. Despite having minimal background knowledge in electrical engineering, they studied the subjects, IC Process Integration, and Cleanroom Equipment & Technology. Generally they did well with exceptional performance to Natasyah scoring 'A's and Muhammad attaining Distinctions for their subjects. In addition, the students also took a third subject, Good Manufacturing Practices Implementation, offered by CHE in ASC.

These students later secured internships either at Micron or Systems on Silicon Manufacturing Company (SSMC), both of which are major players in Singapore's semiconductor manufacturing industry. This allowed them first-hand work opportunity on cleanroom operations and management, chemical quality control and analysis, as well as Industry 4.0 related projects that involved process automation and building of dashboards to track fabrication plant performance.



# DIFFERENTIAL EXPERIENTIAL PROGRAMME (DXP): SUCCESS STORIES

## Dr Wang Shy Chyi

Deputy Director, Technology Development

The Differential eXperiential Programme (DXP) is ASC's flagship programme for students to develop holistically through working on industry-relevant projects throughout their course of study. There are six centres of excellence/innovation to support ASC students in their DXP journey. These centres include Centre of Innovation – Complementary Health Products (COI-CHP), Centre for Research & Opportunities in Plant Science (CROPS), Centre for Applied Nutrition Services (CANS), Centre for Urban Sustainability (CUS), Centre for Aquaculture & Veterinary Science (CAVS) and Aquaculture Innovation Centre (AIC).

Students first begin by participating in the Differential Research Programme (DRP), a 90-hour stint during semester breaks to explore specific areas and learn relevant basic laboratory techniques. Thereafter, should students have continued interest, they may opt to work on a similar topic as part of a subject, Guided Learning (GL), conducted in a self-directed learning mode to further explore the project area. Having acquired the basic skills and knowledge through DRP and GL, these students can better engage in innovative experimentation and solutioning alongside their supervisors, thus contribute meaningfully in industry projects as part of their final year Major Project (MP).

The DXP was launched in 2020 amidst the COVID pandemic. The pandemic did not impede the students' thirst for meaningful learning, and staff had adapted innovatively to work around the imposed restrictions. With laboratory schedules, students had to stagger their experimentation work and restrict the number of laboratory personnel at each session. Some permissible research work were also conducted at home along with frequent online discussions to facilitate good progress.

**Lim Guan Ying (A19D2, Diploma in Chemical Engineering) and Weslie Lim Jin Hui (A19M4, Diploma in Medical Biotechnology)** conducted their DRP on the study of microalgae cultivation and its applications as aquaculture filters. Their DRP sparked much interest that they decided to continue their study as part of GL to broaden their horizons in moss cultivation. Being trained during DRP in basic laboratory and testing techniques, they were well-equipped to undertake GL through self-directed learning. During the circuit breaker, they purchased different types of moss and each started their moss cultivation at home. Eventually, they did their experiments back in the laboratories when COVID-19 restrictions eased. Their work finally paid off as they submitted their project entitled "Sustainable Indoor Moss Mat for Air Purification" for the Greenwave Environmental Care Competition 2021.

**For Lai Mun Wah Shaun (A19D6, Diploma in Chemical Engineering)**, his DXP journey led him to participate in WorldSkills Singapore (WSS) since 2020. As DRP is the initial introduction and a means to shortlist candidates for WSS in Water Technology skill area, GL was taken as the opportunity for follow-up training. Shaun then did his final intensive training as part of MP which led eventually to the competition in 2021 and subsequently won the Silver medal.

Since its inception, the DXP has met with overwhelming students' enthusiasm and positive feedback. This has enhanced our confidence and desire to curate more meaningful projects to augment multi-disciplinary training and holistic development.



# INTERNSHIPS DURING THE PANDEMIC

**Dr Lee Yun Hwa**

Manager, Diploma in Medical Biotechnology (MBT)



The COVID-19 pandemic brought along numerous challenges despite the school trying to ensure a meaningful SIP learning experience for our students. Many companies either cancelled or delayed placements of interns due to concerns on the implementation of safe management measures and economic factors. In response, ASC proposed some alternative arrangements to the SIP companies to ensure that students could benefit from a meaningful learning experience with these organizations. Such arrangements meant that students could work partially from home, receive reduced allowances, or shorten the internship duration.

Despite making these alternative arrangements, most ASC diplomas still faced difficulties as many placements either involved hands-on laboratory work such as those in clinical or healthcare settings, or were in the service industries. Where alternative arrangements or reallocation were not possible, the SIP team offered students course specific projects that were done either in collaboration with industry partners, or could fulfil the requirements of their course-specific skillsets. In addition, talks were also arranged for students to receive mentorship and guidance from the industry perspectives.

Faced with the challenge of some companies shortening the SIP duration, ASC allowed affected students to take on multiple placements in order to fulfil their SIP duration requirement. These placements could either be in-house at TP, or at an external organization. Nevertheless, each placement had to be for a minimum

of four weeks to facilitate a meaningful learning experience for the students.

Though all students were eventually placed, the disruptions continued throughout the SIP period. Due to safe management measures, some students were not able to work on-site every day and had to work from home on certain days or weeks. Whenever students were placed on LOA/ SHN/ QO/ HRW/ HRA/ HRN, efforts were made to ensure that meaningful off-site tasks were allocated and completed remotely for those who had to work from home. Otherwise, online learning modules (some with certification) approved by the School were also assigned to engage these affected students.

Not unexpectedly, the pandemic also resulted in many new SIP issues that ranged from managing more complex students' (and parents') safety concerns to helping students on mental health matters, stress management, and SIP expectations. Liaison Officers and SIP coordinators also faced an increased administrative workload as students with issues had to be monitored closely. TP's ECG and CARE@TP counsellors were also deployed to counsel students and share tips on self and stress management with students.

Thanks to the unstinting support of colleagues, students eventually completed their SIP with more than 98% of them finding their overall SIP experience to be meaningful, as shown in our SIP Student Survey conducted in 2020 and 2021.

*ECG: Education & Career Guidance  
HRA: Health Risk Alert  
HRN: Health Risk Notice  
HRW: Health Risk Warning*

*LOA: Leave of Absence  
QO: Quarantine Order  
SHN: Stay Home Notice*

# OPPORTUNITIES FOR RESKILLING AND UPSKILLING

## Dr Leong Meng Fatt

Deputy Director, Academic Development

Over the past 2 years, the COVID-19 pandemic has resulted in many changes in education. In ASC, we have changed the way Continuing Education and Training (CET) courses are conducted such that the teaching and learning activities are not disrupted. Importantly, we were able to cater to the learning needs of our adult learners, who were also experiencing constant flux in their work arrangements as a result of the pandemic.

In the early period of the lockdown, when our lecturers and adult learners could not have classes on campus, an unintended consequence was the rapid emergence of online learning. Despite the early hiccups in system setup and learning adjustments, both lecturers and the adult learners were able to pivot quickly and successfully adapted to online platforms for instruction and assessment. Today, online learning has become commonplace and now a mainstay of the teaching and learning tools in our CET courses. Lectures and tutorials are conducted online in a synchronous or asynchronous manner. This new norm in learning provided more flexibility in the adult learners' schedule as they need not rush to school after work for face-to-face lessons. They could also follow recorded online lessons for revision at their own time.

ASC also responded to the nation's call to launch the SGUnited Skills (SGUS) Programme to support the growing industry needs. One of which was a 2-week course, RNA Virus Molecular-Based Testing that equipped adult learners with the skills and knowledge on virus detection in a molecular diagnostic laboratory. The course had since trained more than 237 adult learners. Two other SGUS Programmes launched were the SGUS Up-skill in Aquaculture Technology Programme and the SGUS Up-skill in Optimal Ageing Practice module on Geriatric Nutrition and Therapeutic Diets. Through these SGUS programmes, we had trained 139 adult learners for the aquaculture and gerontology industries.

The CET activities in ASC have grown steadily over the last 2 years, providing trainee training hours of more than 140,000 in 2020 and 220,000 in 2021. These contributed to an average increase of 25% in trainee training hours annually for the past 2 years. ASC had also actively collaborated with other Polytechnics and Schools to introduce new CET courses to the existing suite of full qualification programmes (diploma and specialist diploma courses) as illustrated in the table:

NEW FULL QUALIFICATION COURSE	COURSE OBJECTIVE
Diploma in Applied Science (Medical Laboratory Science)	Co-conducted by all five polytechnics. Focused on training adult learners with skills and knowledge to support the biomedical science industry.
Diploma in Security, Workplace Safety and Health	Focused on equipping adult learners with security and safety skills and knowledge for a wide range of industries.
Specialist Diploma in Gerontology (Nutrition for Ageing Well)	Focused on equipping adult learners with practical knowledge in gerontology and nutrition, to support older adults.

ASC also developed new short courses for industry practitioners to pick up relevant practical skills and regulatory knowledge. These included Pet Care and Management (Birds) for the pet care industry, and Inspection and Repair of Concrete Structures for the built environment industry.

In closing, it must be acknowledged that it was the resilience and commitment of our teaching teams (lecturers, adjunct lecturers and technical support staff) to be able to deliver these CET courses in quantity and quality despite the many challenges. Last but not least, our adult learners have exhibited determination, patience and strong adaptability in their pursuit of new knowledge and skills.

*"In 2021, I took the Specialist Diploma in Laboratory Management and Instrumentation at TP to broaden my knowledge outside of the diagnostic setting and to enhance my skills in mass spectrometry, an analytical tool used for the identification of microorganisms. I was also taught to use statistical tools to assess the positive impact of a quality improvement programme. It was a privilege to be in the SDLMI at TP as the lecturers are highly qualified and passionate about students' learning.*

*Lifelong learning comes in different forms. Some of us prefer to go through structured learning, while others may prefer self-reading or social learning. However, the fundamental characteristic of a lifelong learner is to be open to information. It is also important to acknowledge that we are imperfect and that there are many things we can learn from others."*

**Mr Khoo Boon Ching**, a medical technologist in a hospital completed the Specialist Diploma in Laboratory Management and Instrumentation (SDLMI).

# PRESIDENT'S AWARD FOR TEACHERS (PAT) 2022

## Mr Zhang Pengchi - Finalist

*PAT is the pinnacle award for educators, and it honours the achievements of educators who demonstrate passion and commitment towards teaching. The award is presented annually by Singapore's President before Teachers' Day to recognise those from the teaching fraternity who are excellent educators. Mr Zhang Pengchi is the Course Chair of FNC. He has been teaching in ASC for more than 14 years. He is widely recognised by colleagues to be a pedagogical leader who always seeks innovative ways for students to learn complex subjects like biomedical science, including the use of virtual reality to demonstrate lab sessions.*

### **What were you doing before and what made you join ASC?**

I had been a surgeon for 4 years before obtaining my master's degree at the National University of Singapore. Before joining TP in 2007, I had worked as a research fellow at Johns Hopkins Singapore Biomedical Centre for 3 years and University of Toronto for 2 years. My main scientific research areas are otolaryngology, gene therapy, and tissue engineering. The reason I joined TP was my passion for teaching and I enjoy teaching in the classroom and laboratory. I believe that students have the ability to explore, discover and construct the knowledge.

### **What are some creative methods you have employed to teach students?**

Many students find some science subjects boring, but for me, all boring science theories can be made into interesting stories and my job is to tell these stories to students. For example, when teaching a dry and technical topic like cytokines, I ask students to imagine that they were T-cells in a body fighting in a war (the enemies are viruses), in which the messenger they could use was one of the cytokines. In another example, I asked three students to help me perform a story in which Chinese Kung Fu was used to demonstrate how inhibitors and activators allosterically controlled enzymes.

In the 14-plus years of teaching at TP, I have created many exciting stories from 'boring' scientific theories. Some graduates shared that they can still remember some of these stories despite many years after graduation. I believe that when students find learning interesting, they will learn more by themselves through self-directed learning, which may further boost their passion as lifelong learners.

### **Teaching is not an easy job, what keeps you motivated?**

Students' smiles and their positive feedback keep me motivated. I feel excited when I interact with students in class. It feels rewarding when they tell me how they have enjoyed my lessons. I always reflect on what and how I can do better to improve students' learning and development. And for me, I found this very useful in becoming a better teacher.

I have encountered many types of students in the last 14 years. Some learn faster and some slower. Some have special learning needs, whilst some have a high GPA but may not perform well when handling a real

project and some low GPA students may perform very well in hands-on work. With these observations, I believe that finding and developing students' full potential (both academically and non-academically) are my core duties as a teacher. Hence during each one-to-one student interaction or consultation, I patiently use these opportunities to help them find their potential, and share with them ways to solve problems more effectively. Though some students may need more time, but it has always been time well-spent. I believe that even if I could just make a positive impact to one student's life that could change his/her entire life, that for me is well worth the time.

### **Any memorable or meaningful event that occurred during your time in ASC?**

Under my guidance, two students successfully published a book about dysfunctional noses, titled "Just Being Nosy". This is the first time my students had published a book before graduating from TP. Just within a month, more than 60 copies were sold.

When mentoring the students, I always try to ask questions to provoke students' thinking. One of the students commented that, "looking back I realised that he (Pengchi) never gave us 'the answer' to anything. This was on purpose; he always bounced ideas off us and explored 'the next question' instead. This not only guided us to our goal, but also facilitated our learning process! He was always honest about feedback and sometimes even had to put up with our selfish requests to meet him an hour or two after asking to meet. I am deeply grateful to have been supervised by Mr Zhang."

### **Any advice for people who want to pursue teaching as a career?**

Be patient to all types of students, especially those who might be "slower" than others.

Enjoy what you are going to teach, then students will also enjoy your teaching



# TEACHING EXCELLENCE AWARD (TEA) 2021

## Dr Leong Meng Fatt – Recipient of TEA 2021

*TEA is to acknowledge and motivate teaching staff who have demonstrated significant impact in holistic development of students and inspiring students' learning and passion. The award is presented to teaching staff who have both strong industry linkage and pedagogy mastery. Dr Leong Meng Fatt is the Deputy Director of Academic Development. He has been teaching in ASC for 7 years and has positively impacted students through his up-to-date knowledge of the field and exemplary teaching skills that encourage student engagement. He is greatly appreciated by students for his approach to teaching and care for their well-being.*

### **What were you doing before and what made you join ASC?**

I was a Research Scientist at the Institute of Bioengineering and Nanotechnology in A\*STAR for 7 years. My research focused on creating 3D platforms for tissue constructs and human stem cell propagation. During this time, I had the opportunity to mentor many students in the Youth Research Programme from tertiary institutions, including ASC. I enjoyed the interactions with the young scientists and felt that I could also contribute as a teacher. When the opportunity came about, I applied to be a lecturer with the Diploma in Chemical Engineering team in ASC. The opportunity was attractive as I was able to stay in touch with research work while picking up new skills in teaching.

### **What are some creative methods you have employed to teach students?**

I recall that I was searching for a way to scaffold students' learning in Mathematics as they navigate the complex calculations for the first time. I started using highlighter and different coloured pens when teaching mathematical calculations. Each variable would be represented with a unique colour throughout the process. In this way, students were able to visualise the transformation of the different variables during the calculation. A completed calculation in my class would be full of colours, and that kept things interesting in class. As students become more advanced in the calculations, the colours (scaffolds) were removed.

In the laboratory, I encourage my research students to explore their own ways of measuring experiment parameters instead of providing them with established methodologies or sophisticated equipment. Students must be creative to measure parameters such as temperature, diffusion coefficient, water content within a hydrogel and contact angle of a surfactant. Some students even build their own simple devices and challenge each other's methodology when comparing results. It is through such active interactions and no-boundary exploration that students develop their curiosity and find the joy in learning Science.

### **Teaching is not an easy job, what keeps you motivated?**

Students...knowing that I have the privilege to play a role in the students' education journey, is the motivation that keeps me going.

### **Any memorable or meaningful event that occurred during your time in ASC?**

Many years ago, I had a group of students who felt inferior due to their education background. In my classes, they would be belittling themselves as weak in Mathematics and would often give up solving the questions. I recall chatting with them after class and telling them that they should believe in themselves. I managed to build a strong rapport with this group of students throughout their years in the school. It was especially rewarding when they wrote to me many years after their graduation to inform me that they have found their dream jobs in multi-national petrochemical companies and thank me for believing in them.

### **Any advice for people who want to pursue teaching as a career?**

It is a tough job, but one that is worth the journey.





# OUR STUDENTS, OUR FUTURE

# HOLISTIC DEVELOPMENT OF OUR STUDENTS

## Mr Tan Keng Beng

### Assistant Director, Student Development

ASC understands the impact of prolonged HBL on the mental well-being of our students as students have less opportunity to tap on their peers for support or take part in student activities such as on-campus Co-curricular Activities (CCA) that are important for their holistic development. For ASC, our Student Development team have adopted the approach of leveraging on technology to maintain social connections and promote mental wellness.

One of the most significant initiatives was the collaboration between the Applied Science Studies Club and TP's Counsellors to launch the Mental Health Peer Support Programme targeted at supporting Year 1 students. The programme focused on addressing mental wellness issues that the freshmen faced in transiting from secondary school to tertiary education system, as well as on coping with HBL during the COVID-19 Circuit Breaker period. The Freshmen also learnt how to identify peers who are in distress and approach anyone in need. We were heartened that many of the participants subsequently volunteered to be Befrienders for their caregroups.

ASC also actively promoted sports wellness among our students. Through collaboration with the North East CDC and TP's Student Development & Alumni Affairs Department, ASC took part in the TP-NECDC Virtual Challenge 2021 as an active partner in the charity races, as well as leisure walks and runs, cycling, and fitness challenges. We were pleased that ASC achieved the highest participation rate among all the academic schools in TP; and ASC (both staff and students) raised about \$9000 for the Campus Care Network fund meant for the needy students.

Our student groups also organized a series of mindfulness-based cognitive therapies to reduce stress, build mental resilience and adaptability. This included activities such as yoga, cake decoration and pet therapy, which were very well received by our students.

While the COVID-19 pandemic had left many students feeling isolated, it was encouraging to see students stepped up in taking the initiative to maintain vibrancy and provide support to their student community throughout the challenging year. Three ASC students had shown exemplary conduct and leadership in their respective CCAs and were awarded CCA Scholarships in recognition of their contributions in organising activities, maintaining team spirit, and creating innovative solutions in overcoming constraints:

1. **Weslie Lim Jin Hui** (A19M4, Diploma in MBT) - TP Chinese Orchestra
2. **Latimosa Erika Gaile G** (A19M4, Diploma in MBT) - TP Salvo Drums
3. **Lu Jun Wei** (A19K2, Diploma in VET) - TP Dragon Boat Men's team

Significantly, one of our alumnus has been awarded for his altruistic behaviour both within TP and beyond. **Foo Chuan Zheng** is a graduate student from the Diploma in PHS (A18L2). For his excellent contribution to the community, he was rewarded with the Harvard Prize Book Award from the Harvard Alumni (Singapore) Association in 2020, and the TP Community Service Award in 2021. Since entering the polytechnic, Chuan Zheng has been zealous in advocating volunteering and helping others beyond his comfort zone.

As President of the TP Sports Club, Chuan Zheng sought to promote a vibrant sports culture for all TP students. During the pandemic, he led the Sports Club to collaborate with ActiveSG to organise a campus-wide virtual run. This event was highly successful as it engaged over 2000 students and staff and encouraged them to stay healthy even during the pandemic.

Chuan Zheng also finds passion in serving the community. He is an active volunteer with Fengshan Youth Executive Committee (YEC) under the People's Association (PA) and the Public Health Service Young Health Ambassador. As part of this committee, Chuan Zheng participated in numerous projects and events such as the National Day Parade @ Heartlands, Walk for Rice 2019, and youth dialogue sessions. At the height of the COVID-19 pandemic, Chuan Zheng volunteered to distribute hand sanitizers and masks to the community.

In 2019, Chuan Zheng was nominated by TP to participate in the University Scholar Leadership Symposium held in Kuala Lumpur, Malaysia. Though dyslexia has posed multiple problems in Chuan Zheng's academic journey (such as misreading words and seeing distractive colours), he shared that his medical condition motivates him to strive even harder.



Chuan Zheng (2<sup>nd</sup> from left) with youth network members and with the Members of Parliament from the East Coast GRC.

Watch Chuan Zheng's interview here.



Kudos to these ASC Students for their achievements!

# OUR ALUMNI OVERCOMING CHALLENGES

## Diploma in Veterinary Technology

**Siti Zaharah Binti Mohd Daud**  
A18K2, Graduated in 2021



"2020 is a year I will never forget. I was in Year 3 and had to make radical adjustments to life at home, in school and my finances as well – all thanks to COVID-19.

I am the eldest daughter in my family with a younger brother who has autism. When I am at home, my brother would try to get my attention all the time that

distracted me from my studies. Hence, if I needed to focus, I would revise my work or study outside of my home. Since young I had also been working part time to gain valuable work experience and ease my parent's financial burden. But, as you can imagine, our lives, and finances went topsy turvy when COVID-19 struck.

Home-based learning (HBL) and other measures meant that I had to remain at home for lessons and to study whilst looking after my brother. On top of that, due to the restrictions, both my mother's and my income were affected, and this greatly impacted our family's finances. Thankfully, the family social services and education

bursaries I had received helped us tide through those tough times.

To manage the distractions at home during HBL, I applied useful study hacks/tips gleaned from YouTube. One such idea that worked for me was the system of setting 'focus' and 'break timers'. Basically, I would reward myself – with a time-out – to have snacks, use my mobile phone, or play with my brother – after every focus period.

I have pulled through! For this, I have to thank the Course Chair of my diploma, Ms Valerie Koh, for her constant support and encouragement during my education journey in TP. I found my calling in vet nursing and intend to pursue this as a career.

I'd like to also share with you some tips to help you through any tough times: Try your best to adapt to the situation. Some trial and error might be necessary, and don't give up finding something that works well for you. Remember to reward yourself after a long day of studying. Rewarding yourself does not mean spending money or going to luxury places; it could be having your favourite food, watching your favourite movie or even playing some games. Lastly, talk to anyone you feel comfortable with and share your problems."

**Soo Too Xiao Xuan**  
A19K2, Graduated in 2022



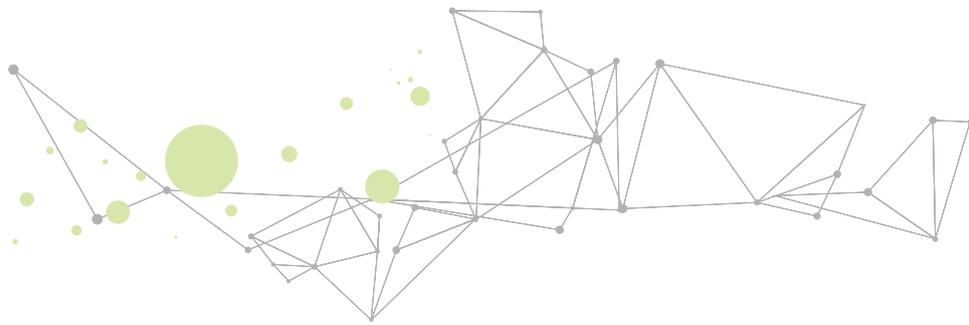
"I am an international student from Malaysia, studying the Diploma in Veterinary Technology. During the pandemic when travel restrictions were in place, I was unable to return to my hometown. This was a stark contrast to my home visits every weekend and during the semester holidays. The homesickness and uncertainties, along with the

stress of the academic workload, tested me emotionally and mentally during those times. I would often find myself missing my family members, and getting worried about them contracting COVID-19, especially when large number of infections were reported then. Being close to and mostly reliant on my parents, I was uncertain if I could get through this period without them especially when I was still unable to adapt to the environment and culture here in Singapore.

Instead of keeping to myself, I decided to open up and share my difficulties and issues with friends. We encouraged each other by sharing our care and concern for one another, which really uplifted me spiritually and emotionally. I also started to have more video calls with my family in Malaysia. We shared a lot of our challenges and worries with one another, and they provided me with plenty of reassurances and advice to help me overcome my difficulties. I vividly recall an incident where I was feeling stressed up about my studies, and they reminded me that I should just try my best and not pressurize myself. It really warmed my heart, knowing that my family would always be there for me even though we were physically separated.

I would like to encourage those who are facing similar difficulties to not keep all the worries and sadness to yourself; share them with those you trust and always remember that the ones who love you will always be there for you. Be positive and stay strong!"

## Diploma in Pharmaceutical Science



### Dicky Chandra Soen

A15L5, Graduated in 2018 and

### Koh Qiao Jun

A17L2, Graduated in 2020

"Over the past year, many faced new challenges directly associated with the COVID-19 pandemic. These exacerbated an already stressful environment in the pharmacy. Pandemic-related rules set by the government impacted our workflow and manpower availability. Prescription and patient volumes increased significantly due to the increased demand for medical services during the pandemic. This meant that at times we had to work extended shifts. All these increased our burnout rate, emotional exhaustion, physical stress, and fatigue. We were indeed overwhelmed by high levels of stress. Many of us learnt to overcome it by thinking positively and being more patient at work, as we tried to adapt to the changes. At the same time, we learnt the importance of self-care by managing our work-life balance. All the best to everyone out there during this uncertain and tough pandemic period. Never give up and work hard as there will be a brighter future ahead."



### Neo Jia Cheng, Aloysius

A15L3, Graduated in 2018



"COVID-19 emerged while I was serving my National Service, and it greatly affected my career and education plans. Back then, the labour market was significantly affected causing an increase in the national unemployment rate. I was vacillating between pursuing an undergraduate degree versus gaining practical experience in the working environment.

I was introduced to the SkillsFuture Earn and Learn Programme and I subsequently enrolled in the Specialist Diploma in Biomedical and Pharmaceutical Engineering at Nanyang Polytechnic. The Earn and Learn Programme also enabled me to get a full-time job as a Medical Production Associate in my current company. The pandemic had disrupted various sectors of the economy including the sector where I now work. But adapting is the order of the day if we want to overcome the challenges posed by the pandemic. These challenges in themselves presented opportunities. As the saying goes: "Opportunities are like sunrises. If you wait too long, you will miss them."

### Rayen Tan

A15L2, Graduated in 2018



"As an employee of the National Centre for Infectious Diseases (NCID), work has been extremely exhausting and demanding. My job requires me to spend long hours in full personal protective equipment (PPE), dispensing medications to suspected patients of SARS-CoV-2 infection. This, on top of my degree studies that I was pursuing part-time,

was undeniably draining. Although the responsibility of having to balance between serving patients and committing to my studies was extremely grueling, especially with the end of the outbreak nowhere in sight, it eventually became a motivational factor that kept me persevering. By placing my focus on the well-being of my patients, I was able to remind myself that both my contributions as a frontline worker and pursuits of higher learning, extend beyond my own needs. Over time, I not only was able to cope with both responsibilities, but even excelled in them. Therefore, as a word of advice and encouragement, remember to always see an obstacle or struggle as an opportunity. By changing your perspective, you will be surprised at what you can achieve or are able to overcome."

## Diploma in Chemical Engineering

### Tan Shi Zhou

A14D5, Graduated in 2017



"I had plans to travel overseas for a summer research internship. However, it was disrupted all due to COVID-19. As such, I decided to make alternative plans to gain research exposure in Singapore. My prior research experience in wastewater treatment back in ASC's Water Technology Domain had equipped me with the necessary knowledge and

experience to be hired by Nanyang Environment & Water Research Institute (NEWRI) as a part-time research assistant to work on wastewater treatment projects.

Currently, I am working on a few sustainability efforts, locally and globally. As the president of Earthlink NTU, I am working on reforestation projects in conjunction with NParks' One Million Trees Initiative to plant trees around NTU. I also started a community garden on NTU campus to tackle food security, as well as organised a panel discussion with Minister Desmond Lee (Minister of National Development). I also co-founded and coordinated the Inter-University Environmental Coalition (a coalition comprising environmental groups

from NUS, Yale-NUS, NTU, SMU, SUTD, SIT, and SIM) that aims to work on nationwide initiatives. I am also involved in the National Day Parade 2022 as their materials consultant for the NDP Pack to analyse the material sustainability. I am also leading a team of Asian youths from the Asian Environment Youth Network (AEYN) which aims to centralize the environmental movement for Asian youth and showcase the stories of various youths in the network.

For those who are facing difficulties during this period, keep an open mind and explore opportunities that are outside of your comfort zone. I have explored business development and entrepreneurship, both of which I never thought I would ever explore, but all that I have learned through these experiences have been extremely enriching and eye-opening!"

## Diploma in Applied Food Science & Nutrition

### Janice Ow-Yong Yun Fei

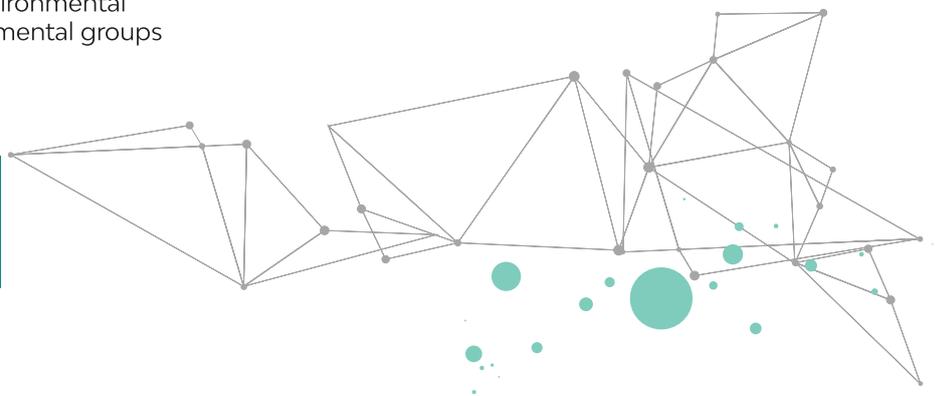
A18A1, Graduated in 2021



Janice graduated from the Diploma in Applied Food Science & Nutrition as a Silver Medalist for her course. With her passion in nutrition, Janice had planned to pursue her studies overseas in nutrition/dietetics. But the pandemic threw a spanner in the works. Not wanting to delay acquiring practical skills, she decided to further her studies locally. Janice

enrolled in the Work-Study Post Diploma (Advanced Diploma in Applied Food Science) at Singapore Polytechnic. Through this programme, she aspires to gain more exposure and experience in the food science industry and widen her opportunities for the future.

Read Janice's interview here.



## Diploma in Baking & Culinary Science

### Lim Wei Keat

A13J2, Graduated in 2016



After graduating from the Diploma in Baking & Culinary Science, his interest in the culinary field led Wei Keat to enroll in SIT-CIA's Food Business Management (Culinary Arts) programme. He graduated in 2020 and had arranged for an internship at a 2 Michelin starred restaurant in New York. But the pandemic scuppered his plans when his internship in

New York was cancelled. Undeterred, Wei Keat rolled with the punches and took on an apprenticeship with a local hawker, learning the ropes of making chicken rice for two months. Seizing this different opportunity allowed him to remain in the F&B industry and follow his passion. Read Janice's interview here.

Read Wei Keat's interview here.



## Diploma in Biotechnology

### Viyshnatulasyi D/O G M

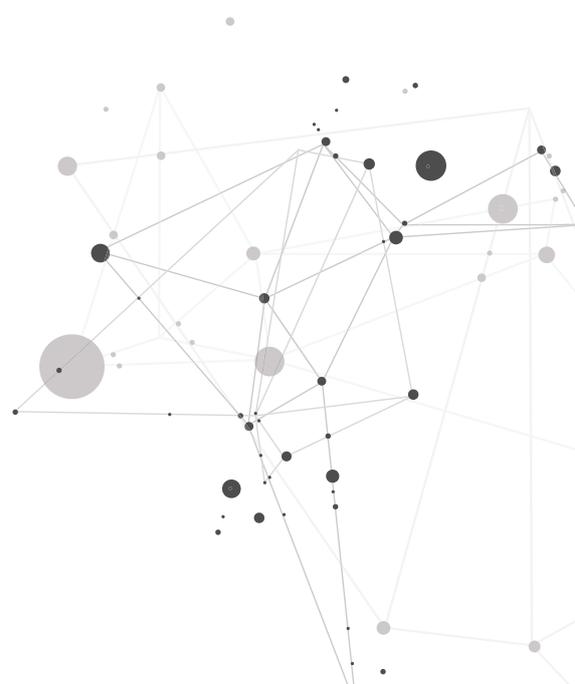
A18F1, Graduated in 2021



Viyshna shows resilience in coping effectively with stress. She is highly adaptable and demonstrates the ability to produce quality work even under stressful conditions. She views challenges as opportunities for personal growth and was able to balance commitments well. She sets challenging goals for herself and demonstrates great determination in

achieving them to the best of her abilities. She joined Temasek Polytechnic Students' Union (TPSU) and was elected as the Quartermaster. She had organized several poly-wide student events as well, and was appointed camp commandant for a leadership training camp. Due to her excellent performance at TPSU, she was elected as the President of TPSU in 2020. Despite the heavier workload from her internship programme and Major Project, Viyshna relished the experience of being able to serve the student community. The tenure at TPSU helped hone her leadership and problem-solving skills. In 2021, she received the Lee Kuan Yew Award and the Lee Hsien Loong Award for Outstanding All-Round Achievement.

Watch Viyshna's interview here.



# SERVING THE COMMUNITY THROUGH GUIDED LEARNING

## HDB Lively Places Challenge 2020

### Lee Jia Ying

A19L4, Diploma in Pharmaceutical Science and

### Sim Rui En Ryan

A19L2, Diploma in Pharmaceutical Science



Sim Rui En Ryan and Lee Jia Ying from the Pharmaceutical Science Interest Group, Totally Pharmaceutical Science (TOPS) led a team to organise a virtual community service project that was supported by the HDB Lively Places Fund. They carried out this community project as part of the GL subject where they picked up and developed skillsets such as event planning and coordination skills and digital and information literacy skills. Together with the committee members of TOPS, held a virtual health and wellness carnival for Sengkang and Punggol residents in collaboration with Active Health SG, Sengkang General Hospital and National Centre for Infectious Diseases. The team created educational materials on topics such as diabetes and antibiotic resistance, and even organized quizzes to reinforce the participants' health knowledge. The year 3 PHS students also used social media platforms to share bite-sized health information on common health conditions with the residents. The project won the Merit Award and Best Social Media Engagement Award in the HDB Lively Places Challenge 2020.

*"Through this project, I learnt how to use digital software in designing educational materials. This project also gave me exposure on how to reach out to external organizations for collaboration. It also gave me an opportunity to learn more about leading a team to successfully execute the event."*

**Lee Jia Ying**

*"I have learnt to be more organized by applying better time management skills through this project. The project also allowed me to explore and learn more about designing educational posters that are not only concise but also able to captivate our target audience."*

**Ryan Sim**

Watch Jia Ying and Ryan's interview here.



## Development of Outreach & Education Material for Pet Owners through Brochures on Vaccination

### Eugene Francesco Ong-Nonis

A19K2, Diploma in Veterinary Technology



Through the GL project, Eugene designed a brochure for the Animal and Veterinary Service (AVS). He worked closely with AVS and veterinarians to gather information that would be important for pet owners. His main aim was to be able to provide accurate and reliable information for pet owners to be more aware of the importance of vaccination,

which will eventually lead to better pet health. Even after the Guided Learning subject had concluded, Eugene stayed on to see this project through its fruition. This showed his dedication to the project and his passion to improve pet health. The final product is featured on AVS website.

Watch Eugene's interview here.



## ProVeg Food Innovation Challenge

### Annabel Teo Yen Min, Benedict Lim Zhao Xun and Kathleen Tay Kai Lin

A20N4, Diploma in Food, Nutrition & Culinary Science

Three students from the Diploma in Food, Nutrition & Culinary Science participated in the ProVeg Food Innovation Challenge. This was a competition for IHL students across ASEAN countries that was launched by ProVeg in partnership with World Animal Protection. Being passionate about creating delicious healthy food and reducing animal consumption, the students came together and developed an advocacy plan, using the

approach of influencing influencers, in order to replace the consumption of animal-based products with plant-based options. In addition, they developed vegan recipes, created recipe videos and educational materials to educate the public on environmental and nutritional benefits of a plant-based diet. The team made it to the final round of the competition and received the Special Mentions Award.



# STUDENT-LED ACTIVITIES FOR THE COMMUNITY

## ASC Studies Club

The ASC Studies Club is passionate in the holistic development of ASC students and grooming them into changemakers that support social causes. Despite constraints due to the COVID-19 pandemic in AY2020/2021, the club stepped up to the challenge and initiated several projects to engage both TP students and the vulnerable communities in society. In recognition of their passion in service learning, the committee members were awarded the TP's Community Service Excellence Award in 2021.

### FUNDRAISING FOR THYE HUA KWAN NURSING HOME

To spread the joy and blessings of the festive season during the pandemic, the Applied Science Studies Club began a fundraising campaign in order to prepare Chinese New Year hampers for the elderly at Thye Hua Kwan nursing home. In total, \$737 was raised from staff and students. The funds were then used to buy essential items, which were then packed into hampers for the elderly.



### VOLUNTEER WORK ON SOCIAL ISSUES RELATED TO CHILDREN AND YOUTH

In December 2020, the Applied Science Studies Club collaborated with a non-government organisation, A Good Space, to organise a series of projects on social issues related to children and the youth. The first project was on social immersion issues aimed to help student leaders understand social issues related to single-parent families, low-income households and youths-at-risk, and develop empathy in the process. In the follow-up project, the student leaders had to organise an educational event to teach children from low-income families about healthy eating.



## MENTAL HEALTH PEER SUPPORT PROGRAMME AND MENTAL HEALTH AWARENESS WEEK

The Mental Health Peer Support Programme was held in May and July 2020 to raise awareness about mental health issues among ASC students. Through this virtual workshop, students understood the types of mental health issues and were given resources to take care of their mental health. This programme was followed by a Mental Health Awareness Week in March 2021, where students took part in simple games and gained knowledge to help their peers in need.



## INTERNATIONAL MIGRANTS' DAY CARNIVAL

In December 2021, in tandem with the International Migrants' Day Carnival, the student leaders participated in the International Migrant Day co-ordinated by the Ministry of Manpower. Besides packing and distributing care packs, the students put their technical competencies to good use, conducting nutrition education, and basic hygiene and health checks for the migrant workers.



## Food Interest Group (FIG) by the Diploma in Food, Nutrition & Culinary Science

### JOINT POLYTECHNIC AND ITE FOOD INDUSTRY CAREER FAIR 2022

The Joint Polytechnic and ITE Food Industry Career Fair is a biennial career guidance event for students aspiring to work in the food industry that includes the food manufacturing and food service sectors. This year, the event was hosted virtually by Temasek Polytechnic's Diploma in Food, Nutrition & Culinary Science on 11 March 2022.

The theme for this year's Career Fair was "Adapt · Agile · Aspire - Careers in an ever-changing food landscape". Singapore's food industry has experienced high demands and new growth such that graduates planning to join the workforce are encouraged to be adaptable and agile in facing new challenges especially when planning their career aspirations.

The event started with a morning webinar that was opened by Dr Christine Lee, the Guest-of-Honour, who presented on the various job scope and career pathways in the food industry. This was followed by a series of alumni sharing from the 5 polytechnics about their working experiences in the food sector. A dialogue session was also conducted to encourage in-depth discussion and interaction between the speakers and audience. The webinar was attended by more than 200 students and alumni from the polytechnics and ITE. It also received many positive feedback commenting that the sessions were "engaging", "informative" and "insightful".

The Career Fair that was held in the afternoon, featured 44 job vacancies from 24 industry partners. Nine of the food companies did a live job-pitching to not only share about the job, but also their unique company culture and training programmes. About 60 students and alumni attended the live job-pitching sessions. Participants commented that the sessions were "innovative" and "eye-opening".

### COMMUNITY SERVICE AT WILLING HEARTS

On 26 December 2021, the FIG main and subcommittee members volunteered at Willing Hearts, a non-profit organisation that prepares meals for beneficiaries that include the elderly and low-income families. The students volunteered at the soup kitchen and packing areas where help were needed most. They prepared and cooked food, as well as, prepared packed gifts and donated items for the beneficiaries. Everyone helped tirelessly though it was a completely new environment. Having prepared more than 5000 sets of meals, the students later helped distribute the packed Christmas gifts and donated items to the beneficiaries. Being able to contribute back to society and help those in need, the students had a fruitful experience working together during this volunteering. As everyone helped regardless of their role, it helped strengthen their bonds to being more compassionate and caring as student leaders too.



# Naturally Innovative Chemical Engineers (NICHE) by the Diploma in Chemical Engineering

## MEALS-ON-WHEELS



TOUCH Home Care's Meals-on-Wheels is a meal delivery programme to help the home-bound elderly receive food daily to meet their nutritional needs. These elderly, who usually live alone,

depend on volunteers to deliver their meals every day and check on their well-being. In January 2021, 40 Year 3 CHE students took turns to volunteer during their Flex Week to deliver meals to these elderly staying in rental flats at Bukit Batok housing estate. The students worked hard (rain or shine) to deliver all the assigned meals on time while relying mostly on Google Maps and public transport to get around. They also enjoyed the short chit-chats with some of the elderly at their doorstep. Overall, it was a meaningful experience as the students got to see a different side of Singapore, help contribute back to the community, and gain a new found respect for delivery riders.

*"I was grateful to be given the opportunity to organize and participate in the Meals-on-Wheels community service project. It was also delightful to see the elderly's happy faces when they received their meals; indeed, a small act of kindness goes a long way."*

**Tey Fang Peng**  
A19D2, Diploma in Chemical Engineering

## NICHE E-SPORTS TOURNAMENT

Missing the bonding and fun from the pre-COVID-19 annual sports day, students from NICHE decided to organise an e-Sports tournament instead. The tournament included popular games such as League of Legends, Mobile Legends and Valorant, that was held in November 2021 with matches scheduled weekly on Saturdays. In accordance with COVID-19 restrictions, students participated from home and communicated via Discord – an online communication platform. The student organisers also took this opportunity to spread the awareness about gaming addiction and promote healthy and responsible gaming habits to the participants. Through various posters and pre-game briefings, the students shared with their peers about the benefits of playing online games, recommended number of playing hours, spotting signs of gaming addiction, and Helplines to call out for help.

*"Our inaugural NICHE e-Sports tournament attracted over a hundred participants across all diplomas from the School of Applied Science, many of whom were able to make new friends through this event and had weeks of fun playing online together."*

**Chin Jun Long**  
A20D5, Diploma in Chemical Engineering

## KEEP CLEAN, SINGAPORE! (KCS)

Together with grassroots leaders from Tampines Town Council, Naturally Innovative Chemical Engineers (NICHE) organised the Keep Clean, Singapore! (KCS) Litter Picking Exercise with the aim of raising environmental awareness among our CHE students and Tampines East residents. Apart from volunteering to pick up litter to keep our neighbouring Tampines estates clean, students from NICHE also created digitalized pamphlets that were shared on various social media platforms to discourage littering and encourage recycling. Whilst developing these pamphlets, it allowed students to gain awareness on how to identify items and materials that could be recycled and how to recycle them. This event also provided an opportunity for CHE freshmen to bond with each other and get to know some of their seniors in NICHE. This community service project served to benefit both the community and the students too.

*"As we were picking up litter around the Tampines estate, we realised that it only takes a minimal amount of effort from each and every one of us to make our neighbourhood a greener space. Many people might think that contributing back to the community alone is difficult and hence hesitate to do so. They might also find it challenging to find suitable organisations to volunteer for. Through this meaningful collaboration with Tampines Town Council, not only have we been able to contribute back to our community and learn about recyclable materials, we have also been inspired to continue with such volunteer work in the long run."*

**Lim Si Jia**  
A20D1, Diploma in Chemical Engineering  
**Tan Jie Ning Genice**  
A21D5, Diploma in Chemical Engineering



## Medical Biotechnology Interest Group (MBIG) by the Diploma in Medical Biotechnology

### VOLUNTEERING AT LIFE EDU SERVICES (LES)

With restrictions on social gatherings, safe distancing and many other measures, the pandemic has plagued our daily routines and social life. As concerned students and committee members of MBIG, they decided to focus on the community's mental and physical well-being by adopting several pragmatic solutions to aid the 6-11 demographic. MBIG partnered Life Edu Services on a project aimed at engaging the children in enrichment activities to nurture their technical and soft skills.

Despite using virtual Zoom sessions instead of face-to-face interactions, the MBIG committee members were still able to establish decorum and the continual engagement of the young and playful children. The sessions included short informative games using Kahoot!

and online mathematical quizzes, as well as animations or videos sourced from YouTube to immerse the children in the imaginative world of storytelling. The games were facilitated like "pictionary" and "hang-man" that the children enjoyed.

Though the committee yearned for a physical interaction, the virtual and digital interactions had also given them the opportunity to make a difference in the community, one call at a time.

## Totally Pharmaceutical Science (TOPS) by the Diploma in Pharmaceutical Science

### WELLNESS AND HEALTH FOR YOUTH!

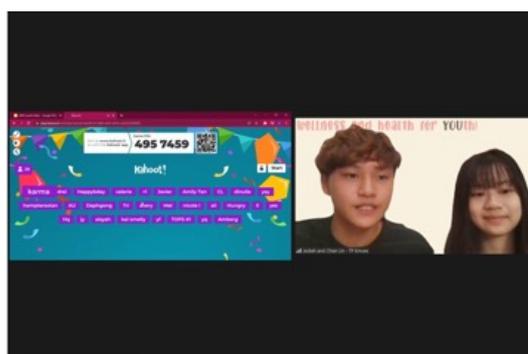
In January 2022, Low Lee Zhit Alvin and Xavier Tan So Qi Xiang from the Pharmaceutical Science Interest Group, Totally Pharmaceutical Science (TOPS) led the team to organise a virtual community service project. With the idea to create an event catered to youths by youths, the team connected and partnered the Psychology Studies Interest Group (from TP's School of Humanities & Social Sciences), No Shade Just Colour (from Ngee Ann Polytechnic) and We Care Community Services. The eventual event Wellness and Health for YOUth! was held via Zoom, and successfully engaged 106 youths through a series of talks on topics such as skincare, mental health, drug and substance abuse, as well as the harmful effects of smoking and vaping. Kahoot! quizzes were also incorporated after the sharing sessions to reinforce what the participants had learnt. Year 2 PHS students also shared via the event's Instagram bite-sized health information on eczema, acne and common health supplements for youths.

*"We were greatly restricted by the COVID-19 measures if we were to conduct physical events, so we had to think of alternative ways to reach out to the community. Hence, we decided to carry out the event through Zoom. One of my biggest takeaway from this project is to always plan ahead so that we will know how to take the next step!"*

**Low Lee Zhit Alvin**  
A20L3, Diploma in Pharmaceutical Science

*"Through this community project, I have learnt how to take charge of and run a community outreach event. I have also learnt what it is like working with external organisations to ensure that the event is a success!"*

**Xavier Tan So Qi Xiang**  
A20L2, Diploma in Pharmaceutical Science



## PARTNERS-IN-CAREER GUIDANCE

“What’s next after my diploma?” This is one of the frequently asked questions by students. As part of the Education & Career Guidance efforts, the PHS course team together with TOPS, organised the event Partners-in-Career Guidance. Partners from the educational institutions, healthcare and pharmaceutical industries were invited to share about further education opportunities and career prospects. PHS alumni were also invited to share their personal journeys upon completing their diploma. Current Year 2 and 3 students, as well as their parents, were invited to attend the event. Through this event, parents shared that they gained more insights on the further education opportunities and career prospects in the pharmaceutical industry, as well as being better equipped with knowledge to help their children in their decision-making process upon graduation.

*“Through organising the talk for career guidance, I learned about the different sectors in the pharmaceutical industry, which was very informative.”*

**Tan Chian Lin**

A20L1, Diploma in Pharmaceutical Science

*“I have learned how to conduct a proper Q&A session and how to engage the invited speakers. As a Year 1 student, I was thankful for this opportunity as I have gained the skills to speak well and present myself professionally in front of a big audience.”*

**Arasyulhaq B Ahmad**

A20L3, Diploma in Pharmaceutical Science

## JOINT POLYTECHNIC AND ITE PHARMACEUTICAL SCIENCE FORUM 2021

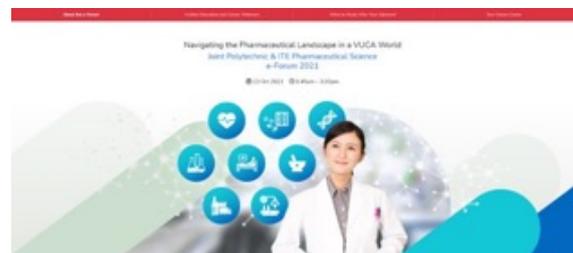
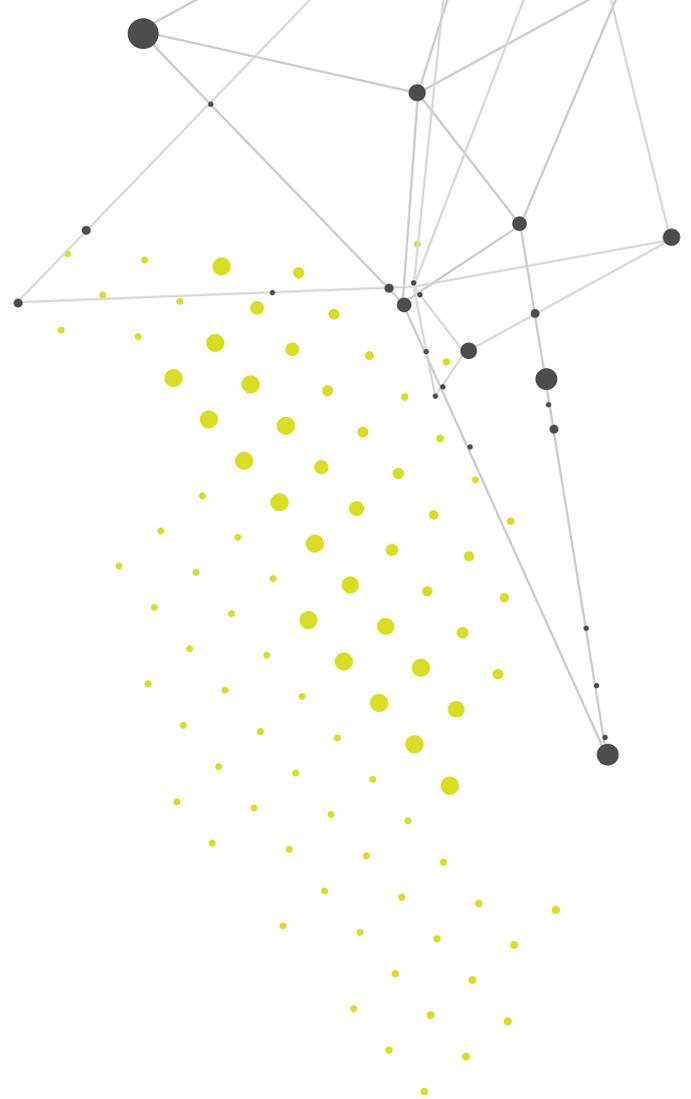
On 13 October 2021, the Diploma in Pharmaceutical Science organised and hosted the Joint Polytechnic and ITE Pharmaceutical Science Forum 2021, themed “Navigating the Pharmaceutical Landscape in a VUCA world”. This biennial education and career guidance event for students was initiated by the Biomedical Science Workgroup. Held as an e-forum, it was followed by a series of fringe webinars on 14 and 15 October 2021.

Dr Camilla Wong, Chief Pharmacist from the Ministry of Health, delivered the keynote address, Finding New Frontiers in a VUCA World. Partners from the healthcare institutions, pharmaceutical industries, as well as local and overseas universities were invited to share about the different career and further education pathways, as well as industry-relevant training opportunities for students after their graduation. The e-Forum on 13 October 2021 was attended by 298 participants and had received 1,515 views as of April 2022, while the further education and career fringe webinars held on 14 and 15 October 2021 had 385 participants. Special thanks to all our industry and university partners, as well as the polytechnics and ITE for supporting this event.

*“The forum has helped me to understand the impact of the VUCA world on the healthcare industry. It also has helped me plan my future pathways and how to realise my career aspiration to be a pharmacist in the future.”*

**Atif Zuhakim B Abbas**

A19L3, Diploma in Pharmaceutical Science



Event Microsite



Industry panel discussion



Alumni panel discussion

## Veterinary Wildlife & Conservation (VWC) by the Diploma in Veterinary Technology

### ALTERNATIVE APPROACHES TO ENGAGE STUDENTS & ALUMNI

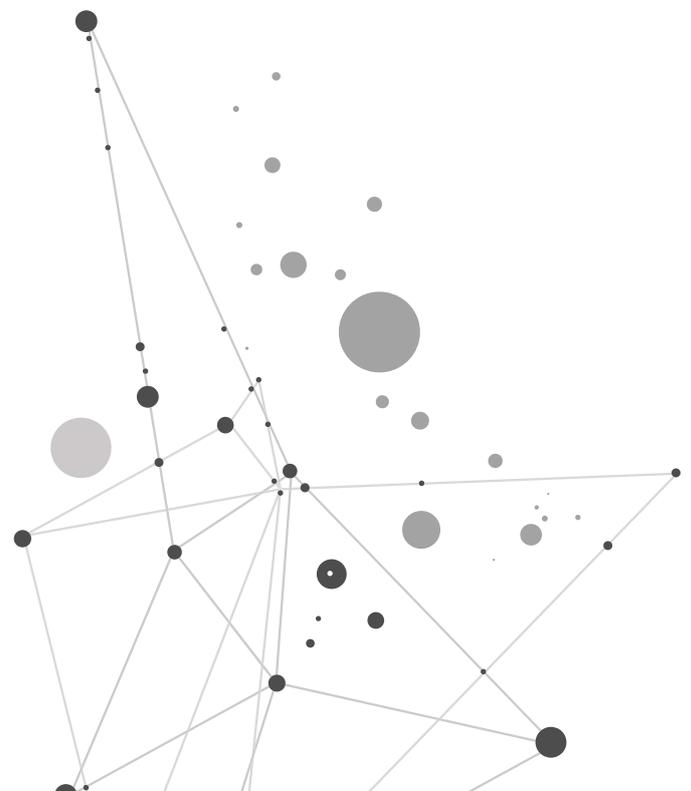
With the seemingly endless restrictions on live events and interactions, the COVID-19 pandemic situation has radically changed the modalities by which we conduct mass media outreach and publicity. The dampening of events such as Open House, industry conferences and school trips to industries and institutions, created a void in publicity and outreach programmes for current and prospective students alike. While the pressure of change would pose a challenge to many, student leaders from the VWC Interest Group rose to the occasion and decided to focus on the use of Instagram and YouTube to drive their initiatives and content to value add on areas of diploma outreach and education/career guidance.

Prospective students to VET can benefit tremendously by understanding the life of a Veterinary Technologist student in Years 1 and 2 of their study with a video reel of their typical school day titled, Day in the Life of a TP Vet Tech Student. And to catch a glimpse of the Student Internship Programme in their final year, the interest group conducted a video series called Intern-View. The series was based on five interviews with Year 3 seniors on their internship in various industries. These videos allowed viewers to understand about the industries they may choose to enter, as well as the diverse internship opportunities available. These projects help supplement Open House 2021 by providing viewers with visual and personalised sharing as compared to the traditional booth-style verbal sharing by our students and staff.

Without industry conferences and school trips to the 'marketplace', the leaders designed three programmes to help their graduating course mates find related and new areas of job opportunities within the industry. The Alumni Instagram Feature gave viewers a glimpse into the different career paths of seven different Vet Tech alumni through short write-ups and picture posts. They also conducted live online sessions with alumni students called Ask-Me-Anything, which was about further education in the science and veterinary industries; and providing valuable insights to guide those who were unsure of their next steps. Lastly, some online in-depth sharing called Dear Younger Me offered viewers 10 personal interviews with our alumni from different veterinary-related professions and industries.

### COLLABORATION BETWEEN VWC AND FIG - FOOD WASTE COMPOSTING INITIATIVE IN TP

Students from VWC and FIG collaborated to spearhead this food waste composting initiative in TP, to convert food waste generated in the school to usable compost for plants. The objective of this initiative was to increase awareness on environmental sustainability and provide students with hands-on experience in composting food waste generated in TP. Students from both interest groups came together to organise a series of programmes, under the guidance of the subject matter expert, Ms Chen Ching Wei, founder of Project Black Gold. Student volunteers from both the Diploma in VET and Diploma in FNC helped to drive awareness through social media, liaise and collect food waste from canteen vendors (with great contributions from Bistro Lab Cafeteria and Bakery), and gave hands-on help to 'feed' the compost weekly. Ms Chen provided training on the theory and practical aspects of compost setup that was successfully adopted on campus. This helped set a greater goal to expand this on a long-term basis. The team has plans set on influencing the neighbouring communities around TP to adopt this project to create greater positive impact on the environment.





# APPLIED RESEARCH AND INNOVATION

# EVOLVING WITH THE CURRENT SITUATION

**Dr Wang Shy Chyi**  
Deputy Director, Technology Development

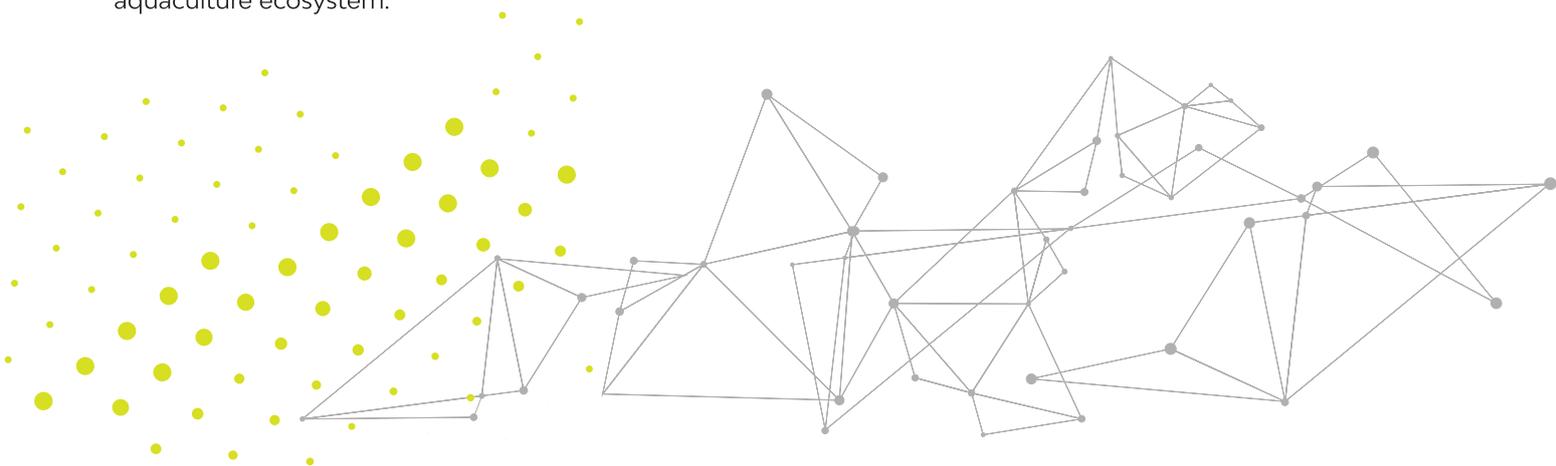
Since 2019, the focus areas of the Centres of Excellence (CoE) have been fine-tuned to support the national strategic areas and the two Centres of Innovation (COI) in Complementary Health Products and Aquaculture respectively. The 4 CoEs are Centre for Applied Nutrition Services (CANS), Centre for Aquaculture and Veterinary Science (CAVS), Centre for Research and Opportunities in Plant Science (CROPS) and Centre for Urban Sustainability (CUS).

In CANS, the development of healthier food products remains our core service. From carbohydrate research to food quality to sensory evaluation, the centre supports the industry in various aspects to bring healthy food to the consumers. CAVS looks more into animal nutrition via feeds and disease management in aquaculture, besides supporting veterinary training and efforts in related areas such as aquaponics.

At CROPS, besides indoor production systems, there is increasing emphasis on microbiome formulations for disease and health management of crops, and formulation technology. CUS remains strong in its efforts toward a sustainable built environment via incorporation of difficult-to-recycle wastes into cementitious materials and other products. It also looks at innovative ways of producing and employing sustainable materials.

The Centre of Innovation – Complementary Health Products (COI-CHP), a national centre supported by Enterprise Singapore, now focuses on supporting human health and wellness with traditional medicines, health supplements and functional foods, and has a full suite of capabilities in product authentication, evaluation and registration.

The other national centre in TP, Aquaculture Innovation Centre, supports the industry in various aspects within the aquaculture ecosystem.



## RE-LAUNCHING OF CENTRE OF INNOVATION FOR COMPLEMENTARY HEALTH PRODUCTS

**Dr Tian Feng, Edmund**  
Head, COI-CHP

The Centre of Innovation for Complementary Health Product (COI-CHP) was established in 2016 as part of a strategic partnership with Enterprise Singapore (formerly known as SPRING Singapore). This national centre supports Singapore-based Complementary Health Product (CHP) enterprises to meet growing challenges and keep up with technological advances. In January 2022, with the Government's Research, Innovation and Enterprise (RIE) Innovation Infrastructure grant, COI-CHP officially relaunched the next phase of their journey.

With a dedicated multi-disciplinary and research-intensive team, the Centre offers innovative and customised solutions to CHP enterprises on areas such as product development and formulation, certification and standardisation, as well as safety and efficacy studies. The Centre is seeking collaboration with industrial partners to innovate and set new paths in the areas of CHP—namely traditional medicines, health supplements and functional foods whilst also supporting government policies and regulations.

# NEW COLLABORATIVE PARTNERSHIPS AND PROJECTS

## Temasek Foundation

### COVID-19 TESTING TRAINING

In response to national demands during the COVID-19 pandemic, TP worked with Temasek Foundation to quickly launch the “RNA Virus Molecular Testing Training Course”. This is to train aspiring laboratory technicians and laboratory assistants who could immediately work after their training as specialised manpower to support the exponentially growing needs for COVID-19 testing. The 2-week CET training programme provided participants with basic knowledge and skills to work in a molecular diagnostic laboratory for virus detection. In the second week of the training, the participants were attached to a molecular diagnostic laboratory to gain more experience.



### VIRUCIDAL EFFICACY TESTING OF SURFACE DISINFECTANTS

Through the introduction of Temasek Foundation, scientists at our Centre of Innovation had helped to evaluate the virucidal efficacy for two surface disinfectants who were widely deployed during the pandemic. This work is important to assess whether the disinfectants, which are commonly used for cleaning purposes, are also effective against the coronaviruses.

### MASK TESTING ———> SETTING UP OF LABORATORY FOR MASK TESTING

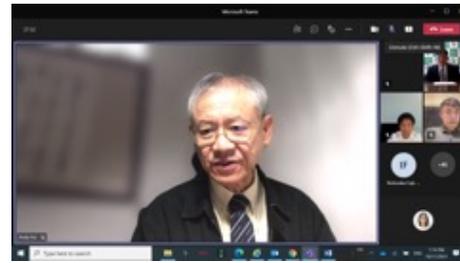
Temasek Foundation supported local institutions such as TP and NYP to build up mask testing capabilities. Eventually, this would better support the surge in demand for such capabilities during pandemic times, would and help strengthen the nation’s resilience in crisis management. In 2021, Temasek Foundation had kindly donated various equipment to TP meant for Particle Filtration Efficiency (PFE), Bacterial Filtration Efficiency (BFE) and Virus Filtration Efficiency (VFE). At present, the equipment are operational and can support any mask testing work.

## Shizuoka Prefecture

In October 2019, TP led a team to visit Shizuoka to understand their agritech activities. During that visit, Dr Takashi Nanba, Vice-Governor of the Shizuoka Prefecture Government, hosted the Singapore delegates. Following the 2019 trip, TP invited Nanyang Polytechnic, Ngee Ann Polytechnic, Republic Polytechnic and Institute of Technical Education to join in this partnership. At the inaugural Singapore-Shizuoka Agri-Food Forum (SSAFF) on 17 Nov 2020, the various institutes of higher learning and Shizuoka Prefecture announced their MOU to co-operate in research and development in agriculture, and provide mutual support for the technology commercialisation and expansion into global markets.



A SSAFF website (<https://saffmanager.wixsite.com/ssagrifoodforum>) was launched and parties continued to work together to organise subsequent forums. The second forum themed, Urban Agriculture was held on 10 Nov 2021, which drew several collaborations between Singapore and Shizuoka companies including the Happy Quality – Blue Aqua joint venture, and the cooperation between Masuda Seeds and Sustenir. The 2021 forum also saw the participation of A\*STAR and ESG as invited speakers.



## Sentosa Development Corporation (SDC)

As part of the Singapore Green Plan 2030, Sentosa would be transformed into a carbon-neutral destination to help Singapore capture opportunities in the green economy and in preparation for the rebound in global tourism post pandemic. With the MOU signed in July 2021, TP would jointly support a range of projects and initiatives to support SDC in achieving its intent of being a leading sustainable leisure and tourism destination under the Sustainable Sentosa strategic thrust. CUS is taking the lead to design sustainable 3D printable cementitious materials with mixed plastic wastes to be produced and showcased in Sentosa.



## Link Capital Pte Ltd

TP (COI-CHP) and Link Capital Pte Ltd (LCPL) agreed to collaborate in the development of novel complementary health products containing Agarwood and its product innovation. This project aims to establish technical standards of quality certification to certify that Agarwood is cultivated, harvested, and processed sustainably for global consumers. This partnership will also include education and training activities on Agarwood innovation, among others. This strategic partnership allows COI-CHP to leverage on LCPL's extensive network of Agarwood plantations in ASEAN to establish Singapore as a Centre of Excellence (Agarwood Hub) for the global market and future product innovations. The long-term innovation goal is to effectively reposition the Agarwood industry in a sustainable way and diversify investments and resources that will benefit Singapore. In the press release, Mr Denny Chong, Founder and CEO of LCPL shared, "as a company, we feel privileged to partner with Temasek Polytechnic in our journey of development and growth. The research and development cum innovation support from COI-CHP, will enable our Centre of Excellence in Singapore to work towards achieving the United Nation Sustainable Goals and to fulfil the huge global demand in a responsible manner."

## Stem Cell United

A collaboration agreement was signed between a biotechnology company, Stemcell United (SCU) and TP in May 2020. Through the agreement, the two entities would conduct research on plant stem cell technology for cultivating and farming seagrapes. Personnel from Stemcell United would also deliver lectures and seminars on related topics for TP students. In 2021, SCU and TP also agreed to start a joint food innovation laboratory to develop seagrapes-based recipes and look into product evaluation.



## Salt Asia Pte Ltd

TP and Salt Asia have jointly set up an Urban Fungi Development Lab in May 2021 to work together on various areas such as research in mushroom cultivation, including the medicinal and biomaterial aspects of myco-compounds, and co-organise related workshops and courses.



## Metro Farm Pte Ltd

Over the next few years, Singapore anticipated an increase in economic activity in high-tech aquaponics farming. Metro Farm Pte Ltd and TP had signed a collaboration agreement to set up an Aquaponics Learning Enterprise (ALE) on a rooftop in TP. The ALE would allow TP to build aquaponics capability to support students training, development of new IP to improve farm productivity, and research in aquaculture-related areas that include feed formulation and growth studies.

## ISDN Software Business Pte Ltd

TP and ISDN signed a collaboration agreement in Feb 2022 to co-develop an aesthetic hydroponic system for domestic use. ISDN will lead in the engineering aspects in terms of design, prototyping and manufacture for commercialisation, while TP will incorporate its proprietary LED lighting technology to the system.



## Deakin University, Australia

Between August 2021 and March 2022, students and staff from the Diploma in FNC embarked on a project funded by New Colombo Plan in collaboration with Deakin University. This project involved developing educational materials and facilitating via virtual experiential learning to Australian students about Singapore's food and flavours. Six FNC students successfully created 16 videos highlighting Singapore's local food cuisine that includes information relating to food science, food policy and cultural immersion.

Through the educational videos and infographics, students showcased three local foods of Singapore's main ethnic groups, our food environment, the government's health promotion efforts, and food sustainability efforts in daily life. The use of different types of food processing and food testing equipment were explained along with application of some food science principles in daily life. Though air travel was restricted during the project period, Zoom meetings continued with Deakin University. Students had to carefully plan their filming scenes and schedule as filming took place when safe distancing measures were being strictly implemented. Though only a short video recording time was needed, the students took months of hard work, determination, and team spirit to complete the project successfully. This is a good example of how an international project collaboration and cultural exchange were made possible during the pandemic.





# EVENTS ORGANISED @ ASC

# CELEBRATING OUR 20<sup>TH</sup> ANNIVERSARY

ASC turned 20 in 2020. Due to the pandemic, AS20 Celebration was held virtually via MS Teams on 21 December 2021. Highlights of the celebration included live tours of ASC facilities, with exciting games and prizes. On top of the celebration, each staff received an AS20 gift pack. It is a very meaningful gift as we bring together ASC products for ASC staff. Special thanks to Dr Kalpana, Dr Chan Giek Far, Dr Miao Huang, Chef Randy, Mr Sheng Ping and their teams for their support in preparing the gift pack. ASC colleagues also came together to create a wall of memories and wrote their well-wishes to ASC on the Padlet. To make things more exciting, a trivia was also held on the Padlet.



Padlet post winner  
- Dr Li Huan

# ASC STAFF COMMUNICATION SESSIONS

ASC Staff Communication Sessions are held biannually. Due to the pandemic, the sessions were held over MS Teams. As the safe distancing measures eased up, we were able to have the 39<sup>th</sup> School of Applied Science Communication Session (12 April 2022) was done in a hybrid mode at Cu2+ Staff Lounge.

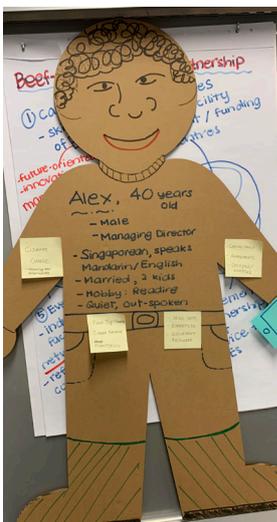


# STAFF APPRECIATION SESSION

This session was held on 6 Oct 2020 to appreciate Mrs Tay-Chan Su Chin and Ms Cheow-Yeo Lay Beng for their service at ASC. Venturing into the second phase of their career after serving TP for 20 years, they will continue to support the school in important areas.

# DESIGN THINKING WORKSHOPS

In April 2021, All ASC staff attended a customized workshop facilitated by colleagues from School of Design: Design Thinking in Action: The SEE Cycle. Through this workshop, ASC staff gained insights into the cyclical and highly iterative creative thinking process and generated many out-of-the-box ideas.



# ASC'S TEACHERS DAY APPRECIATION 2021

To appreciate ASC staff for all the teaching, technical and admin supports provided to our ASC students, ASC prepared a simple gift on Teachers' Day. It was arranged with Bistro Lab for staff to receive either a yoghurt and fenugreek Infused Roast Chicken or double rich chocolate cream gateaux layered with passion fruit gelées (with Low G.I Sugar).



## LEADERSHIP@LUNCH

Leadership@Lunch is organised for our colleagues to gain insights and learn from successful leaders, as well as to inspire and provoke conversations that matter.

With Mr Dylan Ooi and Mr Derek Cheong – 23 September 2021



With Mr Edmond Khoo – 3 March 2022



**LEADERSHIP@LUNCH**  
BY MR EDMOND KHOO  
**THUR, 3 MAR, 1PM – 2:30PM**

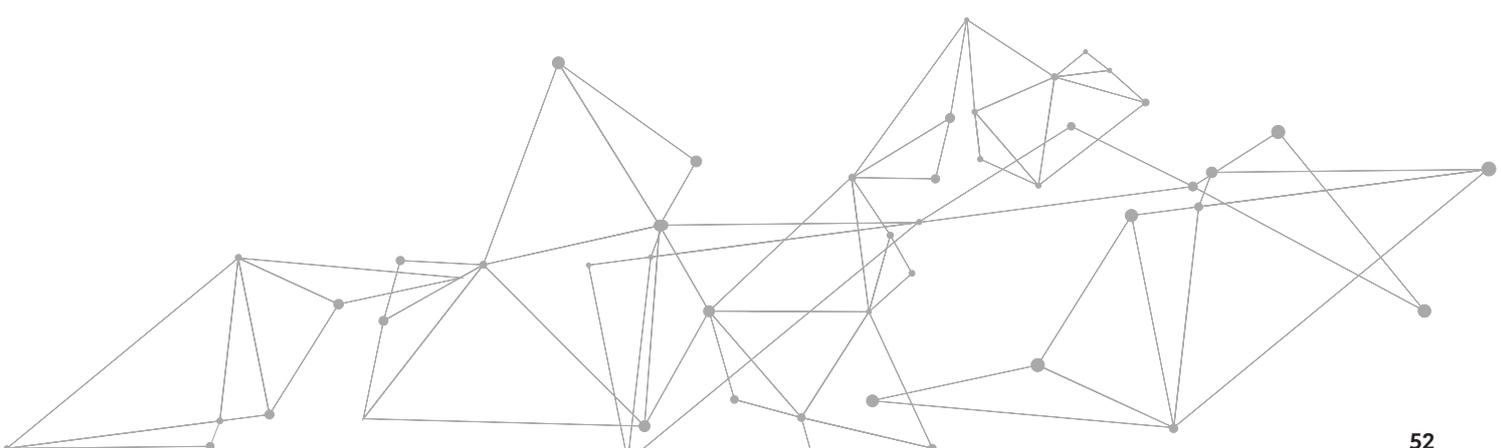
Please sign up by 2 Mar, 5 pm  
Attendees will receive a \$10 Grab e-voucher

**“Put Your Dream To The Test”**

**Are The Odds In Your Favor?**

Whether you're ready to revive an old dream or you're in search of a new one, there are 10 simple questions to ask yourself in order to achieve it. Don't let past disappointment, lack of confidence, or settling for average stand in your way. Be willing to put your dream to the test. It requires dedication and hard work, but the reward is seeing your dream fulfilled!

If you're ready to learn the difference between being a dreamer and a doer, put the odds in your favour by joining the sharing session.



# NATIONAL DAY AWARD PRIZE CEREMONY

The Singapore National Day Awards are a means of recognising various forms of merit and service to Singapore. In 2020, three of our colleagues received their medals.



Mr Wong Yoon Chron –  
Commendation & Long Service Medals



Ms Irene Yong –  
Long Service Medal



Chef Gary –  
Efficiency Medal

## ASC STAR AWARDS

ASC Star Award was created to recognize staff members that have been supporting ASC and demonstrated excellent collaborative behaviours towards others in ASC. It is a good opportunity for peers and supervisors to show their appreciation as it is by nomination basis.

### 2020

- Ms Ong Jing Ting
- Ms Celine Ng
- Ms Sakinah Mulyana



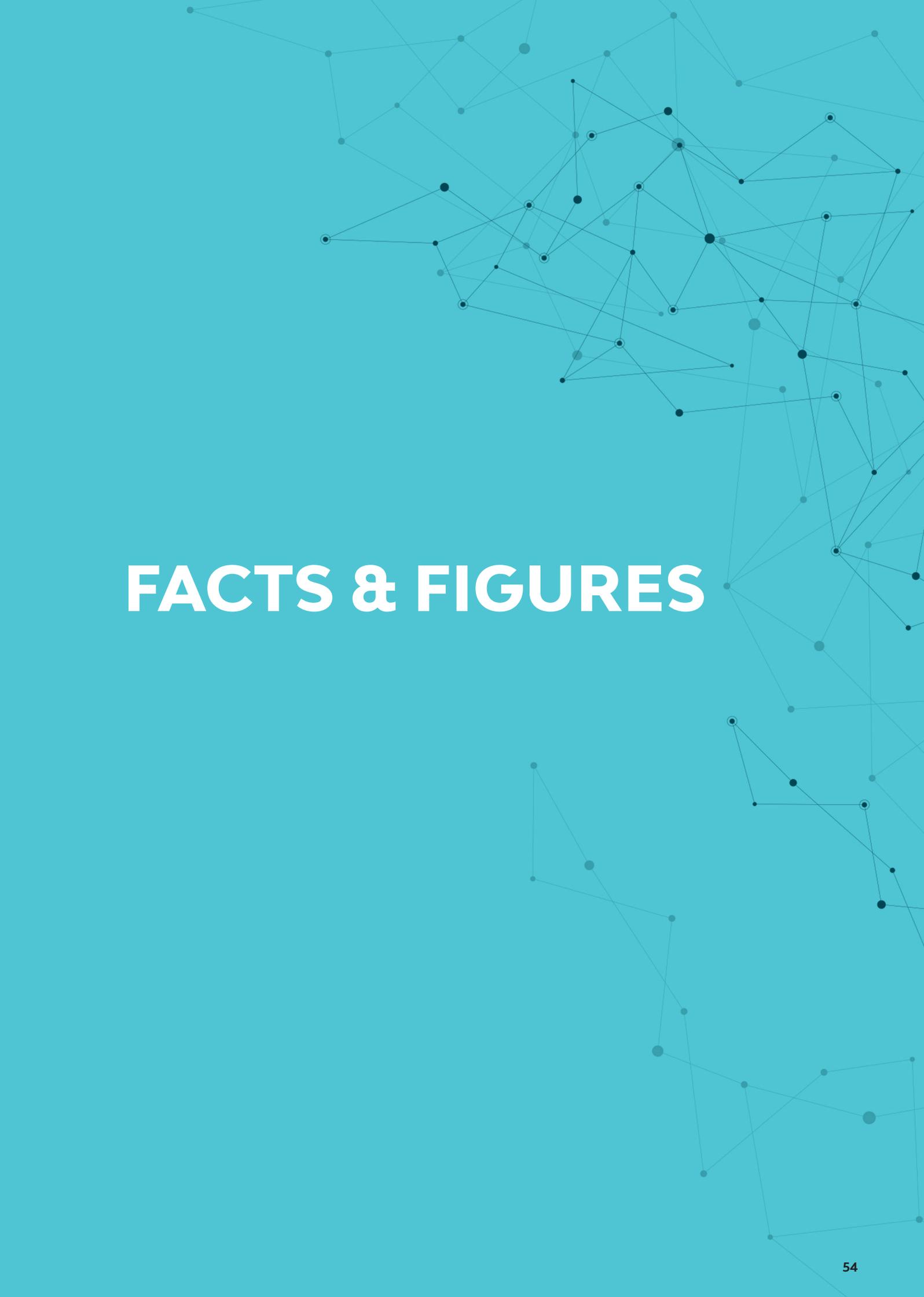
### 2021

- Ms Shiang Wee - Admin/Technical



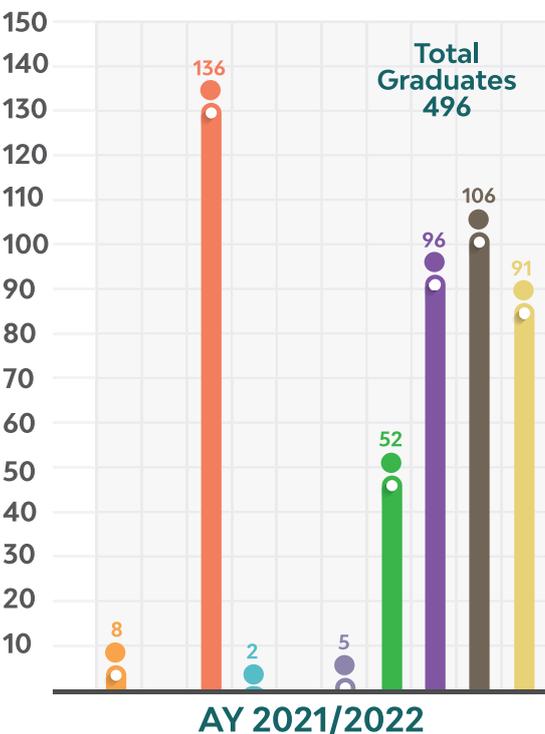
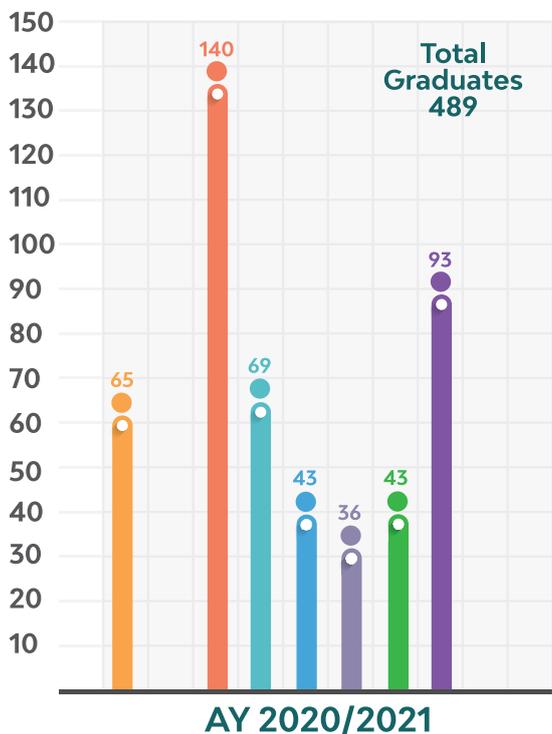
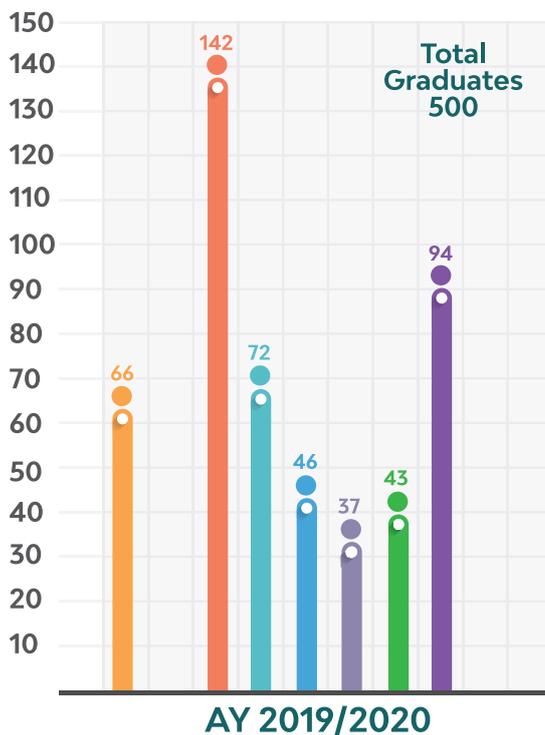
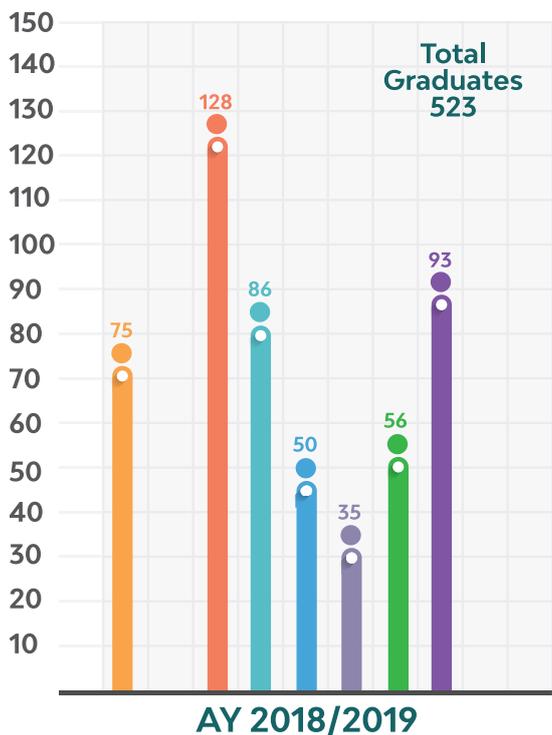
- Dr Shi Lei - Research/Scientist



A network diagram consisting of numerous nodes (represented by small circles) connected by thin lines, forming a complex web. The nodes are scattered across the teal background, with some nodes being larger or more prominent than others. The lines connecting them are thin and light-colored, creating a subtle pattern of connections.

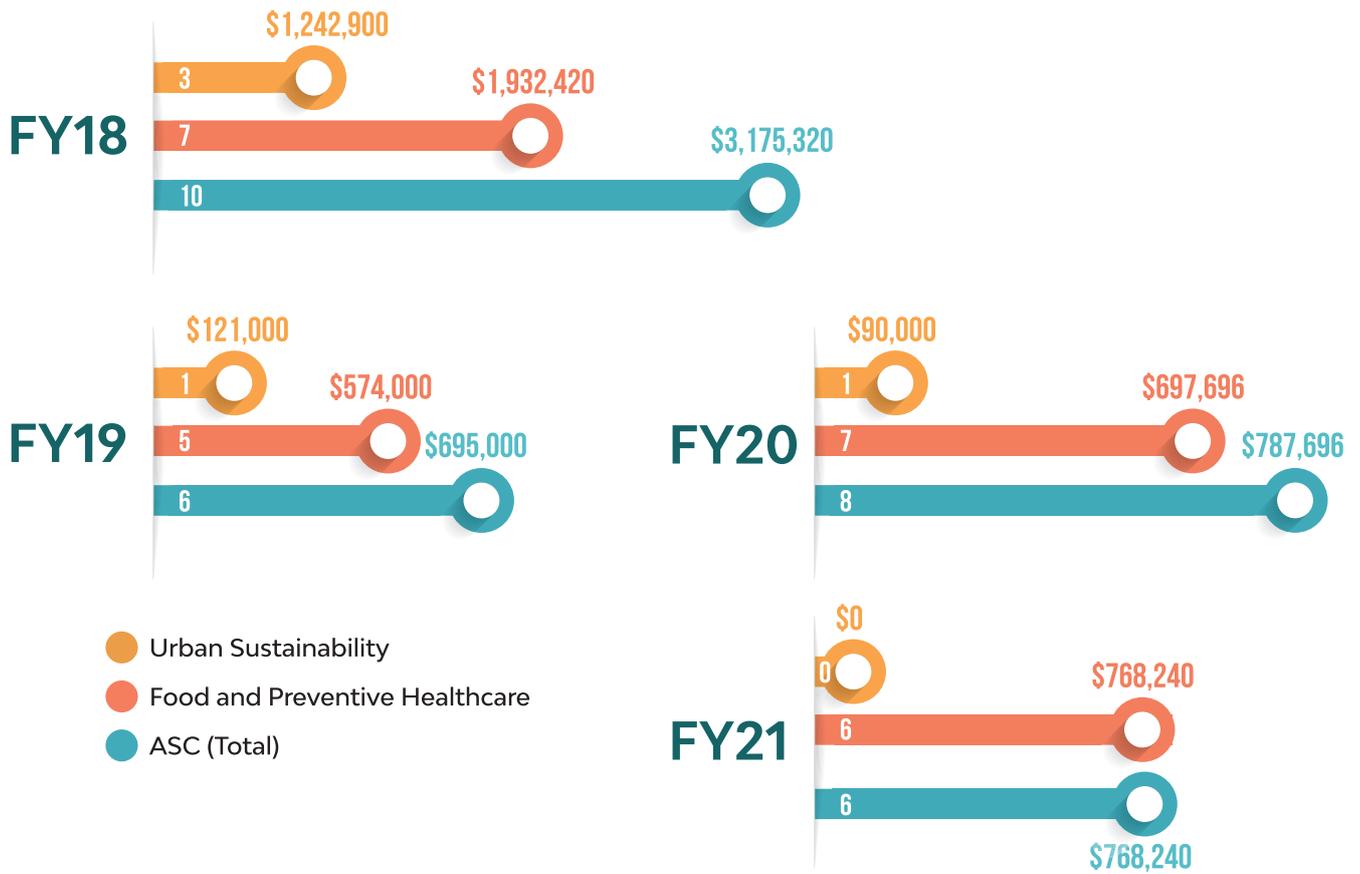
# FACTS & FIGURES

# PROFILE OF GRADUATES

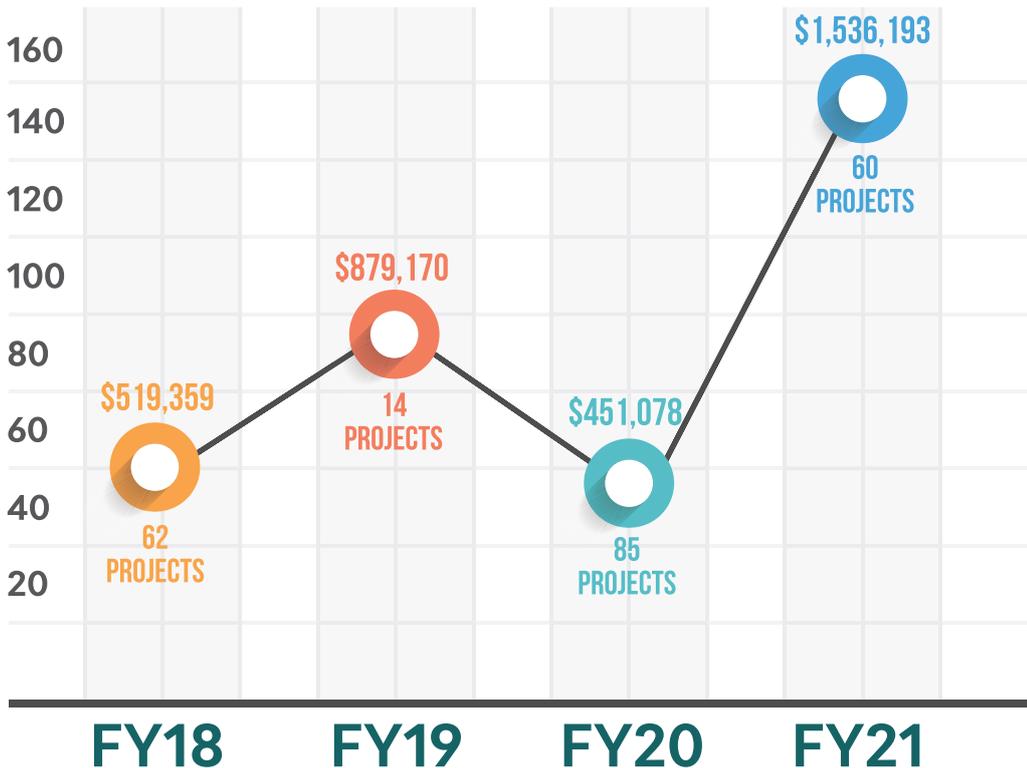


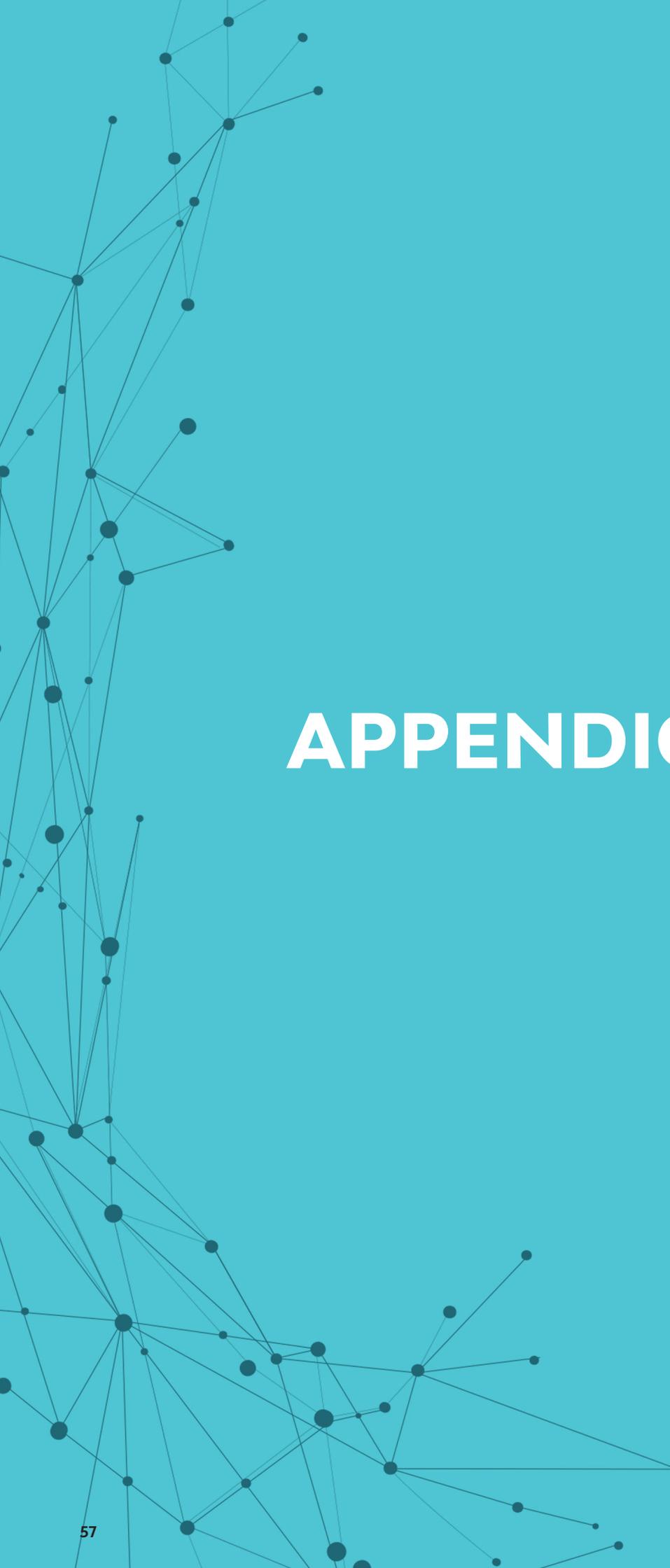
- Diploma in Applied Food Science & Nutrition
- Diploma in Veterinary Technology
- Diploma in Chemical Engineering
- Diploma in Pharmaceutical Science
- Diploma in Biotechnology
- Diploma in Medical Biotechnology
- Diploma in Biomedical Science
- Diploma in Food, Nutrition & Culinary Science
- Diploma in Baking & Culinary Science
- Diploma in Consumer Science & Technology

# EXTERNAL RESEARCH GRANTS



# CONSULTANCY PROJECTS





# APPENDICES

# OUR FRIENDS AND PARTNERS

- 3M
- 3D Matters
- A\*STAR
- A G M Commercial Simbhaoli Sugars Limited
- Aalst Chocolate Pte Ltd
- AASTAR Pte Ltd
- AB Food & Beverages (Thailand)
- AB Sciex (S) Pte Ltd
- Abbott Manufacturing Singapore Pte Ltd
- AbbVie Operations Singapore Pte Ltd
- Academy of Chinese Medicine, Singapore
- Access Medical Pte Ltd
- Ace Biomed Pte Ltd
- Ace Trading and Management Services Pte Ltd
- ACM Biolabs Pte Ltd
- Active Analytics Pte Ltd
- Acumen Research Laboratories
- ADM Cocoa Pte Ltd
- Aegis Venture (M) Sdn Bhd
- Age of Scientia Pte Ltd
- Agency for Integrated Care Pte Ltd
- Agilent Technologies Singapore (Sales) Pte Ltd
- Agrimax Pte Ltd
- AIT Ventures Pte Ltd
- AITbiotech Pte Ltd
- Akzo Nobel Paints (Singapore) Pte Ltd
- Alchemy Foodtech Pte Ltd
- Alcon Pte Ltd
- Alcurea Pte Ltd
- Alexandra Hospita
- Alivia Foods Pte Ltd
- Allswell Trading Pte Ltd
- Amgen Singapore Manufacturing Pte Ltd
- Amlab Services Pte Ltd
- Analytical Laboratories (Singapore) Pte Ltd
- Animal Veterinary Services (AVS)
- Anta Tirta Kirana (Singapore) Pte Ltd
- Anton Paar Singapore Pte Ltd
- Anxon Engineering Pte Ltd
- APD Pharmaceutical Manufacturing Pte Ltd
- Apollo Aquaculture Group Pte Ltd
- Applied Total Control Treatment Pte Ltd/ ATC Coating Pte Ltd
- Aqua FAME Pte Ltd
- AquaRes Technology Pte Ltd
- Aquaworld Tropical Fish Pte Ltd
- Ascelon Pte Ltd
- ASM Front-End Manufacturing Singapore Pte Ltd
- Astra Zeneca Singapore Pte Ltd
- Astuce Envirotec Pte Ltd
- Auric Pacific Food Industries Pte Ltd
- Auric Pacific Marketing Pte Ltd
- Aventis Pharma Manufacturing Pte Ltd
- Awe and Tang Aquarium LLB
- Bakals Malaysia Sdn Bhd
- Bakels Singapore Pte Ltd
- BD Biosciences (Becton, Dickinson and Company)
- Beacons Pharmaceuticals Pte Ltd
- Bespoke Ventures Pte Ltd
- Betamore Limited
- Biconi Pte Ltd
- Big Tree Farms, Bali
- Bio.etc Pte Ltd
- Bio3D Technologies Pte Ltd
- BioGreen (Sanz Pte Ltd)
- Bioinformatics Institutes, Singapore
- Biological Resource Centre, A\*STAR
- Biome Singapore
- Bioprocessing Technology Institute, Singapore
- Blissfully Better LLC USA
- BlueAqua International Pte Ltd
- Botanica Culture International Pte Ltd
- Bountifood Pte Ltd
- Breadtalk Pte Ltd
- BTFL Pte Ltd
- Cancer Science Institute
- Canine Wellness and Rehab Centre
- Celblos Dermal Research Centre Pte Ltd
- Central Narcotics Bureau of Singapore
- Centre for Environment, Fisheries and Aquaculture Science, UK
- Changi General Hospital
- Charman Lal Setia Exports Ltd
- Chek Hup Sdn Bhd
- ChemoPower Technology Pte Ltd
- Chew's Group Limited
- China Tangshan Chinese Pharmaceutical Co.
- Chip Seng Impex (S) Pte Ltd
- Chr. Hansen Singapore Pte Ltd
- Chye Choon Food Pte Ltd
- CIBA Vision Asian Manufacturing and Logistics Pte Ltd
- CLP EnviSystem Pte Ltd
- Co May Pte Ltd
- Coca Cola Singapore Beverages Pte Ltd
- Compass Business Consultancy Pte Ltd
- Compass Foods Pte Ltd
- CV. Quasindo
- D'Farmer Global Network Pte Ltd
- Dana Products Inc
- Danisco Singapore Pte Ltd
- Danone Asia Pacific Holdings Pte Ltd
- Danone Dumex (Malaysia) Sdn Bhd
- Danone Nutricia Research (PTSH Holdings Singapore Pte Ltd)
- Dashmesh Singapore Pte Ltd
- Dav Electronics Pte Ltd
- Dawyn Impex Pte Ltd
- Delcie's Desserts and Cakes Pte Ltd
- Delightex Pte Ltd
- DHI Water & Environment (S) Pte Ltd
- Diabetic Society of Singapore
- Diabetic Specialties Pte Ltd
- DKSH Singapore Pte Ltd
- DSO National Laboratories
- Duke - NUS Medical School
- Dumex Singapore
- Dynaglass Reinforced Plastic Pte Ltd
- Dynalynk Pharma Pte Ltd
- Eco-Wiz Group Pte Ltd
- EcoGreen Recycle
- Ecolab Pte Ltd
- Ecolite Nutrition Domain (Singapore) Pte Ltd
- Economic Development Board (EDB)
- Ecosoft Pte Ltd
- Elo Water Pte Ltd
- Eng Bee Paper Merchant Pte Ltd
- Eng Seng Construction Pte Ltd
- Enlive Pte Ltd
- Enterprise Singapore
- Environmental Health Institute (EHI)
- Epitome of Naturalness LLP
- Eriskay Foods Pte Ltd
- Esco Aster Pte Ltd
- Eti Gida Sanayi ve Tic. A.Ş., Turkey
- Eurofins Mechem Pte Ltd
- Eu Yan Sang International Ltd
- F&G Food Pte Ltd
- F&N Interflavine Pte Ltd
- Faesol Pte Ltd
- Fairmont Hotels and Resort
- Finagle Lanka Pte Ltd
- Firmenich Asia Pte Ltd
- Fishery Research Institutes of Shizuoka Prefecture
- Fitness Health and International Pte Ltd
- Fong Yit Kaya Pte Ltd
- Food Innovation and Resource Centre
- Foodia Inc., Taiwan
- Foodie Warrior Pte Ltd
- Forever Young Enterprise Singapore Pte Ltd

147. Fraser and Neave Pte Ltd
148. FrieslandCampina Amea Pte Ltd
149. Frost & Sullivan (Singapore) Pte Ltd
150. Fuchs Lubricants Pte Ltd
151. G.NRG Eco Pte Ltd
152. G5 International Holdings Pte Ltd
153. Gaia Science Pte Ltd
154. Gardenia Bakeries (KL) Sdn Bhd
155. Gardenia Foods (S) Pte Ltd
156. Gardens By the Bay
157. GeneSing Technologies Pte Ltd
158. Genome Institute of Singapore
159. Gills and Fins Pte Ltd
160. GlaxoSmithKline (GSK) plc
161. GlucoSTATS System Pte Ltd
162. Golden Sunland Singapore Pte Ltd
163. Gopher Pte Ltd
164. Grace Healthcare Products Pte Ltd
165. GranFill Pte Ltd
166. Green Faculty Pte Ltd
167. Green Image Organic Enterprise Sdn Bhd
168. Greenology Pte Ltd
169. Griffith University
170. Grover Capital Pte Ltd
171. Guardian Health and Beauty
172. Healing-Cell Pte Ltd
173. H.W. Traditional Medicine Pte Ltd
174. H&K Fishery
175. Harbin Medical University
176. Healing Movement Singapore
177. Health Domain Pte Ltd
178. Health Promotion Board
179. Health Science Authority
180. Health Supplements Industry Association (Singapore)
181. Healthway Medical Group Pte Ltd
182. Hei Thai Pte Ltd
183. Herb & Fashion Pte Ltd
184. Herbal Life Asia Pacific Services Ltd
185. Herbalife International India Pvt Ltd
186. Herbalife International of Hong Kong Ltd
187. Herbalife Korea Co Ltd
188. Herbalife of Japan K.K.
189. Herbalife Philippines
190. Herbalink Pte Ltd
191. Hexagon Nutrition Pvt Ltd
192. Hock Hua Group
193. Hock Seng Food Pte Ltd
194. Hong Lian Gim Kee
195. HSD Holding Smart Device S.R.L.
196. Hua Bao Agency Pte Ltd
197. Huay Feng Hang Pte Ltd
198. Hyphens Pharma Pte Lts
199. Hysses Singapore Pte Ltd
200. i2P Ventures Pte Ltd
201. IDEC Corporation
202. IE Singapore
203. IM Gateway Pte Ltd
204. iNano Industries Pte Ltd
205. Incure Adhesives Manufacturing Pte Ltd
206. Infuud Asia Pte Ltd
207. Ingrid Design Pte Ltd
208. Innoheart Pte Ltd
209. Innovative Diagnostic Pte Ltd
210. Insectta Pte Ltd
211. Inspiring Generations Pte Ltd
212. Institute of Bioengineering and Nanotechnology
213. Institute of Infocomm Research
214. Institute of Mental Health
215. Institute of Molecular and Cell Biology
216. Institution of Aquaculture Singapore
217. International Enterprise Singapore
218. International Flavors & Fragrances (Greater Asia) Pte Ltd
219. International Fragrance and Flavours, Inc.
220. Intertek Testing Services (S) Pte Ltd
221. INVE Asia Services Ltd
222. InvitroCue Pte Ltd
223. IPI Singapore
224. Ippin Pte Ltd
225. IQVIA Inc.
226. ISDN Software Business Pte Ltd
227. Islamic Religious Council of Singapore
228. James Cook University Pte Ltd
229. Japan External Trade Organization
230. Jay Gee Health Pte Ltd
231. JeenHuat Foodstuffs Industries Sdn Bhd
232. Jiangnan University
233. Johnson & Johnson
234. Jumbo Group Limited
235. Jurong Health Services Pte Ltd
236. Kampong Kekasih Pte Ltd
237. Kang Zhen Pte Ltd
238. Kei-Y Corporation Pte Ltd
239. Kemin Industries (Asia Pacific) Pte Ltd
240. Kentucky Fried Chicken Management Pte Ltd
241. Keppel Infrastructure Holdings Pte Ltd  
(member of Keppel Group)
242. Khoo Teck Phuat Hospital
243. Kiat Lee Landscape and Building Pte Ltd
244. Kim Sin Medicine Manufactory Pte Ltd
245. Kino Biotech Pte Ltd
246. KK Women's and Children's Hospital Pte Ltd
247. Kovax Pte Ltd
248. Kurita (Singapore) Pte Ltd
249. Lam Soon Singapore Pte Ltd
250. Le Choix Pte Ltd
251. Leading Bioenergy (S) Pte Ltd
252. Ledrink (Singapore) Pte Ltd
253. Leong Guan Food Manufacture
254. Life Technologies Holdings Pte Ltd (ThermoFisher)
255. Life3 Pte Ltd
256. Ligi Import Singapore Pte Ltd
257. Lim Investment Management Pte Ltd
258. Link Capital Pte Ltd
259. LKF Medical Co Pte Ltd
260. Lonza Biologics Singapore Pte Ltd
261. Lubrigrate Ocean (Ubin) Pte Ltd
262. Lynk Biotechnologies Pte Ltd
263. Malaysian Dairy Industries Pte Ltd
264. Malaysian Feedmills Pte Ltd
265. Maliban Biscuit Manufactories (Pvt) Ltd
266. Maliki International Pte Ltd
267. Mandrake Medical Pte Ltd
268. Marine Life Park
269. McGraw-Hill Education (Asia)
270. Mead Johnson (Manufacturing) Pte Ltd
271. MeChem Consultancy Services Pte Ltd
272. Meiji Seika (Singapore) Pte Ltd
273. Merck, Sharp and Dohme Animal Health Innovation Pte Ltd
274. MesoPhase Technologies Inc (Taiwan)
275. Metro Farm Pte Ltd
276. Metropolitan Fishery Group Pte Ltd
277. Mettler Toledo (S) Pte Ltd
278. Micro Blood Science Inc
279. Ministry of Economy, Trade & Industry (METI) (Japan)
280. Minmed Pte Ltd
281. Mitsui Chemicals Asia Pacific, Ltd
282. Modular Farms Incorporated
283. Montreux Patisserie Pte Ltd
284. Mount Alvernia Hospital
285. Mount Pleasant Animal Medical Centre Pte Ltd
286. Movement for the Intellectually Disabled Singapore
287. MP Biomedicals Asia Pacific Pte Ltd
288. MSD Animal Health Innovation Pte Ltd
289. Nalco-Pacific Pte Ltd
290. Nanchang University
291. Nanjing University of Chinese Medicine
292. Nanyang Technological University
293. National Cancer Centre Singapore
294. National Dental Centre Singapore
295. National Environmental Agency
296. National Equestrian Centre
297. National Healthcare Group Polyclinic
298. National Heart Centre Singapore
299. National Heritage Board
300. National Kidney Foundation
301. National Neuroscience Institute
302. National Parks Board
303. National Research Foundation

304. National Skin Centre
305. National University Health System
306. National University of Singapore
307. Natura Biotechnologies
308. Nature Treasure Group LLP
309. Nature Treasures Channel Pte Ltd
310. Nestec Ltd
311. Nestle Hong Kong Limited
312. Nestle R&D Centre (Pte) Ltd
313. Nestle Singapore Pte Ltd
314. New Eastern (1971) Pte Ltd
315. Ng Teng Fong General Hospital
316. Ng Yong Hock Investments (S) Pte Ltd
317. NHG Pharmacy
318. North East Community Development Council
319. Norvartis Singapore Pte Ltd
320. NSL Oilchem Waste Management Pte Ltd
321. NTUC Foodfare Co-Operative Ltd
322. NTUC Health Co-Operative Ltd
323. NU International Singapore Pte Ltd
324. Nutrition Innovation Singapore Pte Ltd
325. Nutriwerks Pte Ltd
326. Ocean Health Pte Ltd
327. Oceanus Group Limited
328. Oceanus Tech Pte Ltd
329. Oh Chin Huat Hydrophonics Farm Pte Ltd
330. Olam Cocoa Pte Ltd
331. Olam International Ltd
332. OneNine57 Pte Ltd
333. ONI Global Pte Ltd
334. Optima Daribell Pte Ltd
335. Orgabia Manufacturing Shd Bhd
336. Oriental Aquarium (S) Pte Ltd
337. Panasonic R&D Centre Singapore
338. Par International Holdings Pte Ltd
339. Paragon Traders Pte Ltd
340. Parkway Hospitals Singapore Pte Ltd
341. Parkway Laboratory Services Ltd
342. Parkway Shenton Pte Ltd
343. Peninsular Food Products Sdn Bhd
344. Petrochemical Corporation of Singapore (Private) Limited
345. Philip Morris International Research Laboratories Pte Ltd
346. Philips Electronics (S) Pte Ltd
347. Phoon Huat Pte Ltd
348. Photocatalysis Industry Association of Japan
349. Pioneer Environmental Technology Pte Ltd
350. Poli Medical Company Pte Ltd
351. PolyBen Pte Ltd
352. PomeFresh Organic Pte Ltd
353. Prima Pte Ltd
354. Procter & Gamble Company
355. Procter & Gamble International Operations SA SG Branch
356. PS Food & Beveragge (S) Pte Ltd
357. PT Amerta Indah Otsuka
358. PT Sahabat Lingkungan Hidup (Indonesia)
359. PTSH Holding Banone Nutricia Research
360. Public Utilities Board
361. Pure Rich Biogems (S) Pte Ltd
362. QuantumTx Pte Ltd
363. Quest Laboratories Pte Ltd
364. Quintech Life Science Pte Ltd
365. Quintiles East Asia Pte Ltd
366. Radiometer SEA Pte Ltd
367. Raffles Hospital Pte Ltd
368. Realstuff Aquaculture and Food Pte Ltd
369. Reborne Pte Ltd
370. Reckitt Benckiser (S) Pte Ltd
371. Reckitt Benckiser LLC (USA)
372. Resort World at Sentosa Pte Ltd
373. Revongen Corporation Sdn Bhd
374. RHK Venture Pte Ltd
375. Right Hands Corporation Pte Ltd
376. RIKEN Centre for Integrative Medical Sciences
377. Roche Diagnostics Asia Pacific Pte Ltd
378. Roche Singapore Pte Ltd
379. Rong Yao Pte Ltd
380. Ross University School of Veterinary Medicine
381. SMC Food 21 Pte Ltd
382. Sachi Inchi Pte Ltd
383. SAGA Foodstuffs Manufacturing Pte Ltd
384. Sai Hing Medical Hall Pte Ltd
385. Saint George's University Limited, Grenada, West Indies
386. Salt Asia Pte Ltd
387. Salus Nanotechnologies Pte Ltd
388. Sameza Pte Ltd
389. San Lay Marine Culture Co Pte Ltd
390. San Sesan Global Pte Ltd
391. Science Arts Co Pte Ltd
392. Scuta Farms
393. Sea Business Centre Pte Ltd
394. Seasons Aesthetics Pte Ltd
395. Seerpharma Singapore Pte Ltd
396. Select Group Limited
397. Sembcorp EOSM Pte Ltd
398. Sengkang General Hospital
399. Sentosa Development Corporation (SDC)
400. SGS Testing & Control Services Singapore Pte Ltd
401. Shell Eastern Petroleum (Pte) Ltd
402. Shizenature Pte Ltd
403. Shizuoka Prefectural Government of Japan
404. Shokuken Prefectural Government of Japan
405. Siltronic Silicon Wafer Pte Ltd
406. Singapore Accreditation Council
407. Singapore Agritech Pte Ltd
408. Singapore Centre for Environmental Life Science Engineering
409. Singapore Chinese Physicians' Association
410. Singapore Clinical Research Institute Pte Ltd
411. Singapore College of Traditional Chinese Medicine
412. Singapore District Cooling Pte Ltd
413. Singapore Food Agency
414. Singapore Food Delights Manufacturer Pte Ltd
415. Singapore General Hospital Pte Ltd
416. Singapore Health Services Pte Ltd
417. Singapore Heart Foundation
418. Singapore Institute of Engineering Technologists
419. Singapore Mabs Pte Ltd
420. Singapore Nutrition and Dietetics Association
421. Singapore Pastry Alliance
422. Singapore Peking Oxford Research Enterprise (SPORE), National University of Singapore
423. Singapore Police Force
424. Singapore Polytechnic
425. Singapore Salad Pte Ltd
426. Singapore Sports Institute
427. Singapore Turf Club
428. Singapore University of Technology and Design
429. Singapore Veterinary Association
430. Singapore Workforce Development Agency
431. SingHealth Experimental Medicine Centre
432. Singka Industries Pte Ltd
433. Sino-Glory Medical Investment Pte Ltd
434. Skin Research Institute of Singapore (SRIS)
435. Smart Hatchery Pte Ltd
436. SMART-MIT Alliance
437. SmartAHC, Nanyang Technological University
438. Sobono Energy Pte Ltd
439. Somnetics Global Pte Ltd
440. South Island Aquarium Pte Ltd
441. Southern Taiwan University of Science and Technology
442. Soyato Foods International Pte Ltd
443. Soyjoy (Otsuka Pharmaceutical Co. Ltd)
444. Speedy Assay Sdn Bhd
445. Sri Nona Food Industries Sdn Bhd
446. St. Andrew's Community Hospital
447. ST Kinetics Integrated Engineering Pte Ltd
448. Starxyz Pte Ltd
449. Stellamarina Pte Ltd
450. Stem Cell United (SCU)
451. STERIS Corporation
452. Steward Cross Pte Ltd
453. StratifiCare Pte Ltd
454. Strength Fish Farm and Trading Pte Ltd
455. Strides Pharma Global Pte Ltd
456. Sultan Qaboos University
457. Sunshine Bakeries
458. Sunward Pharmaceutical Pte Ltd
459. SW Foods International Pte Ltd
460. Swastea Pte Ltd

461. Sweet Home Candied Products Sdn Bhd  
462. Syed Mohamed Traders (Singapore) Pte Ltd  
463. Symrise Asia Pacific Pte Ltd  
464. Syngenta Asia Pacific Pte Ltd  
465. Systems On Silicon Manufacturing Company Pte Ltd  
466. T&G Global Limited  
467. Tai Tong Ah Company Pte Ltd  
468. Taiho Pharmaceutical Co. Ltd  
469. Takasago Singapore Pte Ltd  
470. Tan Seng Kee Foods Pte Ltd  
471. Tan Tock Seng Hospital  
472. TAQ Pte Ltd  
473. Tat Hui Foods Pte Ltd  
474. Tatgu Pte Ltd  
475. Techkon Properties Pte Ltd  
476. Temasek Foundation  
477. Temasek Life Sciences Laboratory  
478. Tenplas Industries Sdn Bhd  
479. Tessa Therapeutics Pte Ltd  
480. Tetra Pak  
481. TG Gateau Pte Ltd  
482. Thai Airways Public Co. Ktd  
483. Thanaka Cosmetics Pte Ltd  
484. The Coffee Exchange Pte Ltd  
485. The Fish Farmer Pte Ltd  
486. The Goodwater Company Pte Ltd  
487. The Kettle Gourmet Pte Ltd  
488. The Leafy Loft Pte Ltd  
489. The Mitolo Group  
490. The National Centre for Genetic Engineering and  
Biotechnology, National Science and Technology  
Development Agency  
491. The Product Makers, Australia Pte Ltd  
492. The Sukha House Pte Ltd  
493. Thermo Fisher Singapore Pte Ltd  
494. Tien Yuen Chemical Pte Ltd  
495. Timbre Enterprise Pte Ltd  
496. Tong Jum Chew  
497. Top Seller Pte Ltd  
498. Toyo Rice Co. Ltd  
499. Transalgae Israel Ltd, Israel  
500. Trichokare Pte Ltd  
501. Tropical Marine Science Institute  
502. True Heritage Brew Singapore Pte Ltd  
503. True Organix Asia Pte Ltd  
504. Tung Luk Restaurant Pte Ltd  
505. Turners and Growers New Zealand Limited  
506. TÜV SÜD PSB Pte Ltd  
507. Ugene Laboratory Services Pte Ltd  
508. UglyGood Pte Ltd  
509. Ultra Low Asia Hygiene Technology Pte Ltd  
510. Unicurd Food Company Pte Ltd  
511. Unified Summit Resources Pte Ltd  
512. United BMEC Pte Ltd  
513. Unitednature (F.E) Pte Ltd  
514. Unity By FairPrice  
515. University of Applied Sciences, Utrecht  
516. Uno Nutrition Sdn Bhd  
517. Upgrown Farming Asia Pte Ltd  
518. USA Poultry and Egg Export Council  
519. Veolia ES Singapore Industrial Pte Ltd  
520. VibraSys Pte Ltd  
521. Vifor Pharma Asia Pacific Pte Ltd  
522. Vistra Lemexiss Pte Ltd  
523. Watsons Singapore  
524. Welcia-BHG Pharmacy  
525. WEMMS Enterprise  
526. Wen Ken Marketing (S) Pte Ltd  
527. Wen Ken Group Pte Ltd  
528. West Pharmaceutical Services Pte Ltd  
529. WhiteRock Medical Company Pte Ltd  
530. Mandai Wildlife Group  
531. Willowvale Asia Pte Ltd  
532. Woon Leng Nursery Pte Ltd  
533. Workforce Singapore  
534. Wyeth Nutrition Singapore Pte Ltd  
535. Xeon Trading Co. Pte Ltd  
536. Yaizu Suisankagaku Industry Co Ltd  
537. Yalkult (Singapore) Pte Ltd  
538. YHS (Singapore) Pte Ltd  
539. Yi Shi Yuan Pte Ltd  
540. Yikowei Pte Ltd  
541. Yong Loo Lin School of Medicine  
542. YTL Power Seraya Pte Ltd  
543. Yu Guo Chinese Physician Pte Ltd  
544. Yun Onn Company Pte Ltd

# INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE

Feb 2020 – Feb 2022

NAME	ROLE
Dr Jason Chang	Chair
Dr Low Ji Zhen	Attending Veterinarian
Dr Neo Peici	Covering Veterinarian
Mr Joshua Chan	Secretary
Dr Diana Chan	Scientific Member
Dr Padmanabhan Saravanan	Scientific Member
Dr Jiang Fengli	Scientific Member
Mr Ramachandra Segaran	Non-Scientific Member
Dr Christian Bluechel	Non-Scientific Member

Mar 2022 - Present

NAME	ROLE
Dr Jiang Fengli	Chair
Dr Low Ji Zhen	Attending Veterinarian
Dr Neo Peici	Covering Veterinarian
Mr Joshua Chan	Secretary/ Non Scientific Member
Dr Diana Chan	Scientific Member
Dr Padmanabhan Saravanan	Scientific Member
Dr Mohamed Shirhan Mohamed Atan	Scientific Member
Dr Christian Bluechel	Non-Scientific Member

# INSTITUTIONAL REVIEW BOARD

June 2019 – June 2021

NAME	ROLE	INTERNAL / EXTERNAL MEMBER
<b>Dr Nicholas Ngui</b> <i>Physician</i> <i>Owner of NeuAge Clinic</i>	Chairman	External
<b>Dr Ng Yi Kai</b> <i>Scientific Officer</i> <i>National Public Health Laboratory</i> <i>National Centre for Infectious Disease</i>	Scientific person	External
<b>Dr Lim Wei Wen</b> <i>Research Fellow</i> <i>National Heart Centre</i>	Scientific person	External
<b>Mr Lim Kwang Kok</b> <i>Assistant Director</i> <i>Integrated Care Knowledge</i> <i>Agency for Integrated Care (AIC)</i>	Layperson	External
<b>Dr Jonathan Cheah Weng Kwong</b> <i>Executive Director</i> <i>Faesol Pte Ltd</i>	Layperson	External
Dr Clara Teo Ru Lin	Scientific person	Internal (ASC)
Dr Foo Chun Shin Maisha	Scientific person	Internal (ASC)
Dr Kalpana Bhaskaran	Scientific person	Internal (ASC)
Mr Justin Ignatious De Silva	Scientific person	Internal (ASC)
Dr Leong Meng Fatt	Scientific person	Internal (ASC)
Dr Meliana Riwanto	Scientific person	Internal (ASC)
Dr Shabbir M Moochhala	Scientific person	Internal (ASC)
Dr Fu Yi	Scientific person	Internal (ENG)
Ms Gabrielle Lai	Scientific person	Internal (HSS)
Dr Tan Wah Pheow	Scientific person	Internal (HSS)
Mr Looi Kwok Peng	Layperson	Internal (BUS)
Mr Chan Weng Kit	Layperson	Internal (RTD)
Mr Tan Chee Hong, Daryl	Layperson	Internal (RTD)

Jun 2021 - Present

NAME	ROLE	INTERNAL / EXTERNAL MEMBER
<b>Dr Nicholas Ngui</b> <i>Physician</i> <i>Owner of NeuAge Clinic</i>	Chairperson	External
<b>Dr Lee Ming Chong, Ivor Russel</b> <i>Research Fellow (Clinical)</i> <i>National Centre for Infectious Diseases,</i> <i>Tan Tock Seng Hospital</i>	Scientific person	External
<b>Dr Lim Wei Wen</b> <i>Research Fellow</i> <i>National Heart Centre</i>	Scientific person	External
<b>Dr Jonathan Cheah Weng Kwong</b> <i>Executive Director</i> <i>Faesol Pte Ltd</i>	Layperson	External
<b>Mr Lim Kwang Kok</b> <i>Assistant Director</i> <i>Integrated Care Knowledge</i> <i>Agency for Integrated Care (AIC)</i>	Layperson	External
Dr Clara Teo Ru Lin	Scientific person	Internal (ASC)
Mr Justin Ignatious De Silva	Scientific person	Internal (ASC)
Dr Leong Meng Fatt	Scientific person	Internal (ASC)
Dr Fu Yi	Scientific person	Internal (ENG)
Dr Gabrielle Lai	Scientific person	Internal (HSS)
Dr Tan Wah Pheow	Scientific person	Internal (HSS)
Mr Looi Kwok Peng	Layperson	Internal (BUS)
Mr Chan Weng Kit	Layperson	Internal (RTD)

# MANAGEMENT STAFF

## (AS OF APRIL 2022)

### **DIRECTOR**

Dr Goh Lay Beng

### **DEPUTY DIRECTORS**

Dr Leong Meng Fatt  
*Academic Development*

Dr Loh Gin Hin  
*Quality Development and Planning*

Dr Wuang Shy Chyi  
*Technology Development*

### **ASSISTANT DIRECTOR**

Mr Tan Keng Beng  
*Student Development*

### **HEADS**

Dr Jiang Fengli  
*Centre for Aquaculture and Veterinary Science*

Dr Kalpana Bhaskaran  
*Centre for Applied Nutrition Services*  
*Glycemic Index Research Unit*

Dr Patel Kadamb Haribhai  
*Centre for Research and Opportunities for Plant Science*

Dr Tian Feng, Edmund  
*Centre of Innovation for Complementary Health Products*

Dr Wong Sook Fun  
*Centre for Urban Sustainability*

Ms Petrina Lim  
*Translational Projects*

### **COURSE CHAIRS**

Dr Chan Giek Far  
*Medical Biotechnology*

Dr Foo Chun Shin Maisha  
*Pharmaceutical Science*

Ms Koh Seow Wei, Valerie  
*Veterinary Technology*

Dr Miao Huang  
*Chemical Engineering*

Mr Zhang Pengchi  
*Food, Nutrition and Culinary Science*

### **DOMAIN CHAIRS**

Dr Loh Gin Hin  
*Education Research and Development*  
*Covering, Corporate Development*

Mr Siew Yong Pau, Zacchaeus  
*Water Technology*

### **SENIOR MANAGERS**

Ms Hor Mooi Sian, Magdeline  
*Academic Development*

Dr Jiang Li  
*Technical and Infrastructure Support*

### **MANAGERS (COURSES)**

Mr Bong Chee Keong  
*Chemical Engineering*

Ms Johanna Tan  
*Food, Nutrition and Culinary Science*

Dr Lee Yun Hwa  
*Medical Biotechnology*

Dr Low Ji Zhen  
*Veterinary Technology*

Ms Shahedah Bte Md Ali  
*Pharmaceutical Science*

### **MANAGERS (OTHERS)**

Dr Clara Teo Ru Lin  
*Common Science Programme*

Ms Lin Meilin Phoebe  
*Technical and Infrastructure Support*

Mr Randy Chow  
*Bistro Lab & CU2+*

Mr Louis Tay  
*Digital Admin*

We would like to thank these former ASC management colleagues for their contribution

Dr Jason Chang  
Ms Lau Poh Nguk  
Dr Matthew Kong  
Ms Tan Lay Khee  
Mrs Tay-Chan Su Chin  
Ms Victoria Cheng Kher Jia  
Mr Wallace Lim Tse Loong  
Mr Wong Yoon Chron

# STAFF AND STUDENT ACHIEVEMENTS

## STAFF

AWARD	NAME OF STAFF
Educational Innovation Award (EIA) 2021 Hybrid Learning in ASC	Loh Gin Hin (Co- lead) Tan Lay Khee (Co- lead) Goh Miah Kiat Bong Chee Keong Oliver Chang Cynthia Wong and Shirley Tan (LA)
Educational Innovation Award (EIA) 2021 Enhancing level 2 interactivity in online learning by using existing eLearning tools & platforms	Oliver Chang (Lead) Loh Gin Hin Goh Miah Kiat
Teaching Award (TA) 2021	Bong Chee Keong Cynthia Wong Seetoh Pei Jia Chua Yek Tann Huang Zhi
Teaching Award (TA) 2022	Low Ji Zhen Oliver Chang Johanna Tan Mohamed Shirhan Mohamed Atan Maisha Foo
Teaching Excellence Award (TEA) 2021	Leong Meng Fatt
National Day Award 2020 <i>Commendation Medal and Long Service Medal</i>	Wong Yoon Chron
National Day Award 2020 <i>Efficiency Medal</i>	Gary Lim Hock Seng
National Day Award 2020 <i>Long Service Medal</i>	Neo Yoke Peng, Irene
MOE Innergy (Statutory Boards) Silver Award 2020 <i>Production of Building Materials from Urban Wastes for a Sustainable Singapore</i>	Dr Wong Sook Fun (Team Lead) Kevin Lee Jia Le

## STUDENT

### AY20/21 Academic Award

ACADEMIC AWARD	DIPLOMA IN	NAME OF STUDENT
A*STAR Science Awards (Polytechnic)	Pharmaceutical Science	Mathilda Yeo
	Veterinary Technology	Pang Jing Wen Celest
CapitalLand Award for All-Round Excellence	Biotechnology	Chew Ming En Lucas
Course Gold Medal - Acumen Diagnostics	Biotechnology	Viyshnatulasyi D/O G M
Course Gold Medal - AMILI	Biomedical Science	Tan Yeow Boon Xavier
Course Gold Medal - DCH Auriga Singapore	Pharmaceutical Science	Poh Jess Yee
Course Gold Medal - Malaysia Dairy Industries	Applied Food Science & Nutrition	Teh Xin Yee
Course Gold Medal - Tung Lok Group	Baking & Culinary Science	Lee Jie Min, Louisa
Course Gold Medal - Singapore Chemical Industry Council	Chemical Engineering	Bernice Tan
Course Gold Medal - Singapore Veterinary Association	Veterinary Technology	Justin Kam Hong Ren
SIT Scholarship	Applied Food Science & Nutrition	Crystal Chu Hui Zhen
	Baking & Culinary Science	Lee Jie Min, Louisa
UWA Global Excellence Scholarship	Biomedical Science	Haanee Bte Hamkah
	Veterinary Technology	Angelena Chin
	Veterinary Technology	Briann Oh Kor Onn
	Veterinary Technology	Chenoa Bo Kannan
	Veterinary Technology	Chua Yeat Teng
	Veterinary Technology	Elise Lum Yan Yu
	Veterinary Technology	Elizabeth Inge Seow Cheng Lu
	Veterinary Technology	Karisma Soniyaa Vijay
	Veterinary Technology	Lim Chee Meng
	Veterinary Technology	Nabilah Binte Md Haleem Shah
	Veterinary Technology	Pwee Sim Lin Serene
	Veterinary Technology	R Hemma Dharrshini
	Veterinary Technology	Shermaine Tan Rui En
	Veterinary Technology	Shermin Lim
	Veterinary Technology	Tan Zhi Yang
Veterinary Technology	Toh Xiu Lin, Denise	
NUS Global Scholarship	Biotechnology	Viyshnatulasyi D/O G M
	Biomedical Science	Ong Choon Chen
MOH Healthcare Merit Award	Pharmaceutical Science	Clarice Teng Wen Yuan
	Pharmaceutical Science	Ong Pei Ting Michelle
Select Group Study Awards	Food, Nutrition & Culinary Science	Esther Chew Jing Xin
	Food, Nutrition & Culinary Science	Ong Jia Jun, Edwin
	Biomedical Science	Ong Lynn
	Pharmaceutical Science	Poh Lu Zhen Rachel
	Chemical Engineering	Kenneth Chew
	Chemical Engineering	Muhammad Ihsan
	Chemical Engineering	Sandy Koh Li Ling
Singapore Olympic Foundation-Peter Lim Scholarships	Biotechnology	Ervina Lim Qianhui
	Chemical Engineering	Hadi Nursalihin
	Baking & Culinary Science	Loh Jasper
	Chemical Engineering	Ahmad Zaidan

ACADEMIC AWARD	DIPLOMA IN	NAME OF STUDENT
Singapore Olympic Foundation-Peter Lim Scholarships	Biotechnology	Tay Wen Jie
	Applied Food Science & Nutrition	Yeo Li Ying
	Biotechnology	Rebecca Teng
	Biotechnology	Cheu Zhi Feng Roy
	Applied Food Science & Nutrition	Chloe Toh Ler Ya
	Biomedical Science	Yusuf Arsyad
	Medical Biotechnology	Nur Umairah
	Veterinary Technology	Angel Joy Seah
	Pharmaceutical Science	Tiffany Lim
Stemcell United Scholarships	Chemical Engineering	Loh Javier
	Applied Food Science & Nutrition	Benedict Lim Zhao Xun
	Veterinary Technology	Jeron Wong Wei Jie
Takeda Manufacturing Scholarship	Chemical Engineering	Tan Sean Ying
	Pharmaceutical Science	Mabel Ng Yuxi
Temasek CCA Gold Award	Medical Biotechnology	Soe Yan Naung
	Veterinary Technology	Darren Chua Yi Shou
The Daisy Phay-TP Foundation Scholarship	Food, Nutrition & Culinary Science	Boey Megan
	Veterinary Technology	Chang Jing Wen Carmellia
The Lee Hsien Loong Outstanding All-round Achievements Award	Biotechnology	Viyshnatulasy D/O G M
The Lee Kuan Yew Award (best in STEM)	Biotechnology	Viyshnatulasy D/O G M
	Food, Nutrition & Culinary Science	Chua Poon Huat Nicholas
	Medical Biotechnology	Vean Lim Eu Sun
The Tan Agnes Jiannee Scholarships	Pharmaceutical Science	Low Xin Tian Tammy
	Chemical Engineering	Nurul Hidayah Binte Yahaya
	Food, Nutrition & Culinary Science	Malaika Saad Janjua
TP Scholarships	Medical Biotechnology	Nur Aisyah Binte Hanafi
	Pharmaceutical Science	Tan Xian Xun
	Veterinary Technology	Amelia Hong Tze Qi
	Biotechnology	Chew Ming En Lucas
TP Skills Mastery Awards	Chemical Engineering	Sim Kian Seng

#### AY20/21 Competitions

COMPETITION	AWARD	DIPLOMA IN	NAME OF STUDENT
HDB Lively Places Challenge	Merit Award & Best Social Media Engagement Award	Pharmaceutical Science	Lee Jia Ying
		Pharmaceutical Science	Sim Rui En Ryan
NUS Chem-E Challenge	Silver Award	Chemical Engineering	Lai Mun Wah Shaun
		Chemical Engineering	Darrien Png Kai Xiang
		Chemical Engineering	Y Musharaffali
		Chemical Engineering	Lim Guan Ying
World Skills Competition 2021 (Water Technology trade)	Silver Medal	Chemical Engineering	Lai Mun Wah Shaun
	Medallion of Excellence	Chemical Engineering	Y Musharaffali

## AY20/21 Non-Academic Awards

AWARD	DIPLOMA IN	NAME OF STUDENT
GIC Sparks Awards (Community Service)	Medical Biotechnology	Tay Jing Yun
	Medical Biotechnology	Eden Lin Shengxin
	Pharmaceutical Science	Nerissa Chong
Singapore Buddhist Lodge Endeavour Award	Chemical Engineering	Tey Fang Peng
TP Student Excellence Awards (Community Service Excellence)	Pharmaceutical Science	Foo Chuan Zheng
	Biomedical Science	Ong Choon Chen
TP Student Excellence Awards (Outstanding CCA Contributions)	Biomedical Science	Cheong Kai Xin
	Food, Nutrition & Culinary Science	Nicholas Chua
	Food, Nutrition & Culinary Science	Yap Jia Xing
	Pharmaceutical Science	Foo Chuan Zheng

## AY21/22 Academic Award

ACADEMIC AWARD	DIPLOMA IN	NAME OF STUDENT	
ACI (Singapore Chapter) Scholarship	Chemical Engineering	Chen Yihui	
Akaraka Sponsorship Programme	Medical Biotechnology	Weslie Lim Jin Hui	
Course Gold Medal – Amili	Medical Biotechnology	Terina Tay Yan Wen	
Course Gold Medal – Changi General Hospital	Pharmaceutical Science	Nam Yi Ting	
Course Gold Medal – Malaysia Dairy Industries	Food, Nutrition & Culinary Science	Nadine Wong Yun Leng	
Course Gold Medal – Singapore Chemical Industry Council	Chemical Engineering	Lai Mun Wah Shaun	
Course Gold Medal Singapore – Veterinary Association	Veterinary Technology	Goh Si Ying	
Home Team Sponsorship Award	Chemical Engineering	Bryan Ong Song Yang	
MOH Healthcare Merit Award	Food, Nutrition & Culinary Science	Nadine Wong Yun Leng	
	Food, Nutrition & Culinary Science	Lee Yue Er, Lois	
	Medical Biotechnology	Terina Tay Yan Wen	
	Pharmaceutical Science	Chan Jia En, Deslyn	
	Pharmaceutical Science	Lee Jia Sin, Joelyn	
	Veterinary Technology	Leanne Leow Wan Hui	
	National Parks Board-Peter Lim Horticulture and Animal Science Scholarships	Veterinary Technology	Toh Xiu Lin, Denise
		Veterinary Technology	Isis Eka Kesuma
Veterinary Technology		Goo Yu Min Summer Ariel	
Veterinary Technology		Briann Oh Kor Onn	
Veterinary Technology		Shermaine Tan Rui En	
Veterinary Technology		R Hemma Dharrshini	
Veterinary Technology		Poh Xu Wei Raphael	
Veterinary Technology		Pon Vinita D/O Ramachandran	
Veterinary Technology		Vendolyn Cher Wan En	
Veterinary Technology		Chua Yeat Teng	
Veterinary Technology		Lee Wee See, Rayna	
Veterinary Technology		Pwee Sim Lin Serene	
Veterinary Technology	Chenoa Bo Kannan		
Veterinary Technology	Lim Hui Min, Nikko		
NUS Merit Scholarship	Pharmaceutical Science	Nam Yi Ting	

## AY21/22 Academic Award

ACADEMIC AWARD	DIPLOMA IN	NAME OF STUDENT
SFA Sustainability Scholarship	Food, Nutrition & Culinary Science	Yap Jia Xing
SIT Scholarship	Veterinary Technology	Eugenia Ang Wei Ning
SkillsFuture Work-Study Advanced Diploma Sponsorship	Food, Nutrition & Culinary Science	Ng Jia Hui
Takeda Manufacturing Scholarships	Food, Nutrition & Culinary Science	Yong Xin Yee
	Medical Biotechnology	Teo Sheng Yong Ayrto
	Pharmaceutical Science	Josephine Wee Yi Ling
The Daisy Phay-TP Foundation Scholarship	Chemical Engineering	Soh Li Qi
	Medical Biotechnology	Lastimosa Erika Gaile G
	Veterinary Technology	Lu Jun Wei
The Lee Kong Chian Scholarship	Food Nutrition & Culinary Science	Yap Jia Xing
The Lee Kuan Yew Award	Chemical Engineering	Shaun Lai Mun Wah
The Ngee Ann Kongsi Scholarship	Veterinary Technology	Tan Wei Ting
The Tan Agnes Jiannee Scholarships	Medical Biotechnology	Liew Wei Qing
	Pharmaceutical Science	Hiew Jun
	Veterinary Technology	Pang Jing Wen Celest
TP Skills Mastery Awards	Chemical Engineering	Tam Kai Ze
TTSH Health Science Study Sponsorship	Pharmaceutical Science	Suci Wahyuni Bte Seman
	Pharmaceutical Science	Tan Shi Hui, Christina
WHC Health Science Study Sponsorship	Pharmaceutical Science	Beverly Soo Zi Wei

## AY21/22 Competitions

COMPETITION	AWARD	DIPLOMA IN	NAME OF STUDENT
American Concrete Institute- Singapore Chapter (ACI-SC) Project Competition 2021	Gold Award	Chemical Engineering	Darrien Png Kai Xiang
		Chemical Engineering	Ernest Ng Chen Yi
		Chemical Engineering	Muhammad Shahiran Bin Muhammad Nur
		Chemical Engineering	Zhang Ci Fang
	Merit Award	Chemical Engineerin	Senthil Arumugam Palvesraj
Institute-Varsity-Polytechnic- ITE Swimming Meets 2022	10 Gold Medals 2 Silver Medals	Veterinary Technology	Glen Lim Jun Wei
NUS STEP Brain Camp 2022	1st in Group scientific presentation	Medical Biotechnology	Levina Mya Sadis
NTU Anatomy Challenge	Winner of Amazing Race team challenge	Veterinary Technology	Siew Jing En Ally
		Medical Biotechnology	Cheu Zhi Feng, Roy
		Medical Biotechnology	Chia Yong Yun
		Medical Biotechnology	Lovepreet Singh
		Veterinary Technology	Angel Joy Seah
	Individual challenge with Distinction	Medical Biotechnology	Ezzra Md Mohideen
		Medical Biotechnology	Kent Chu Yong Kang
	Individual challenge with Merit	Medical Biotechnology	Anne Margaret Goh Yun Hui
		Veterinary Technology	Siew Jing En Ally
		Veterinary Technology	Chang Jing Wen Carmellia
		Veterinary Technology	Nigel Arthur Chandrasahon
		Veterinary Technology	Joy Lim Jun Xin
	1 <sup>st</sup> Runner-up	Pharmaceutical Science	Low Lee Zhit Alvin
Pharmaceutical Science		Mabel Ng Yuxin	
Pharmaceutical Science		Tan Chian Lin	

**AY21/22 Competitions**

COMPETITION	AWARD	DIPLOMA IN	NAME OF STUDENT
NTU Anatomy Challenge	2 <sup>nd</sup> Runner-Up	Medical Biotechnology	Lim Jia Xi Natasha
		Medical Biotechnology	Wu Kai Le Jonas
		Medical Biotechnology	Goh Sen Yee
SEA Games 2022	Bronze Medal	Veterinary Technology	Glen Lim Jun Wei
Science Buskers Festival 2021 (for the Tertiary / Open category)	Champion	Veterinary Technology	Chang Jing Wen Carmellia
		Veterinary Technology	Nigel Arthur Chandrasahon
		Veterinary Technology	Joy Lim Jun Xin
	1 <sup>st</sup> Runner-up	Pharmaceutical Science	Low Lee Zhit Alvin
		Pharmaceutical Science	Mabel Ng Yuxin
		Pharmaceutical Science	Tan Chian Lin
	2 <sup>nd</sup> Runner-up	Medical Biotechnology	Lim Jia Xi Natasha
		Medical Biotechnology	Wu Kai Le Jonas
		Medical Biotechnology	Goh Sen Yee
The Singapore Junior Water Prize	3 <sup>rd</sup> prize & The Sembcorp Water Innovation Medal	Chemical Engineering	Low Qi En Rachel
		Chemical Engineering	Cindy Songsa Ard Hui Qing

**AY21/22 Non-Academic Awards**

AWARD	DIPLOMA IN	NAME OF STUDENT
National Servicemen (NSF) of the Year 2021 by the Singapore Armed Forces	Biomedical Science (class of 2019)	Raphael Souw Han Jie

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"When we are no longer able to change a situation,  
we are challenged to change ourselves."

- *Victor Frankl*



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