



New Robotics Systems Degree Programme to meet Automation Needs of the Future

SIT’s new degree offering positions students to handle technological shifts in the years ahead

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Adding to its suite of specialised degree programmes, the Singapore Institute of Technology (SIT) is launching a new programme, the [Bachelor of Engineering in Robotics Systems \(RSE\)](#), in Academic Year 2021 (AY 2021). Commencing in September 2021 with an initial intake of 40 students, the four-year programme focuses on the design and development of Service/Field Robotics Systems, with an emphasis on Systems Engineering.

Additionally, the new Academic Year will see the joint programme in Bachelor of Science with Honours in Physiotherapy, offered by SIT and Trinity College Dublin, converted to a four-year SIT-conferred programme. Name changes for the following degree programmes will also take effect in AY 2021.

New SIT-conferred Degree Programmes	Previously Offered As:
Bachelor of Engineering in Robotics Systems	N.A.
Bachelor of Science in Physiotherapy	Bachelor of Science with Honours in Physiotherapy – <i>joint degree programme offered by SIT and Trinity College Dublin</i>

Change in Degree Programme Names	Previously Offered As:
Bachelor of Engineering in Computer Engineering (Intelligent Transportation)	Bachelor of Engineering with Honours in Telematics (Intelligent Transportation Systems Engineering)
Bachelor of Engineering in Mechatronics Systems – <i>joint degree programme offered by SIT and DigiPen Institute of Technology Singapore</i>	Bachelor of Engineering in Systems Engineering (ElectroMechanical Systems) – <i>joint degree programme offered by SIT and DigiPen Institute of Technology Singapore</i>
Master of Science in Chemical Engineering	Master of Engineering Technology in Chemical Engineering
Master of Science in Civil Engineering	Master of Engineering Technology in Civil Engineering
Master of Science in Electrical and Electronic Engineering	Master of Engineering Technology in Electrical and Electronic Engineering

Meeting Industry Demand for Talents in Robotics Development

As demand for automation goes beyond the confines of factories, field robots – mobile robots that operate in dynamic, unstructured environments – are sought after to perform tasks that are too laborious or dangerous for humans. Robots and automation are solutions that help improve productivity and efficiency amidst mounting pressures on Singapore’s population growth and labour supply. According to the Ministry of Trade and Industry Singapore (MTI), over 4,400 industrial robots were installed in 2017, representing an increase of 72% from 2016, a testament to the increasing demand for automation.SIT’s new degree offering positions students to handle technological shifts in the years ahead.

Designed in consultation with key partners such as the National Robotics Programme (NRP) and Economic Development Board (EDB), the RSE programme aims to train engineers who are capable of developing, deploying and maintaining field robots, thus fulfilling the anticipated demand for robotics engineers.

Professor Quek Tong Boon, Chief Executive, NRP, commented: “Robotics is already widely used in manufacturing and we expect to see even greater adoption of industrial robots in the coming years. With advances in technology that enable robots to interact more naturally, intelligently and safely with humans in people-centric environments, there will be more robots expected in our service sectors and public spaces. We need to nurture more roboticists to support such increased adoptions, and NRP welcomes the setting up of the RSE programme to help grow our robotics talent pool.”

Ms Fong Pin Fen, Vice President and Head, Advanced Manufacturing Strategy Group, EDB, shared, “Robotics and automation are key focus areas for Singapore, creating new growth opportunities and enabling the transformation of our industries. Singapore has a growing base of robotics companies, system integrators and research institutes to design, develop and enable adoption of robotics solutions in the manufacturing and service sectors. The RSE programme will equip students with the right skillsets to tap into these opportunities, and develop new capabilities to enhance Singapore’s competitiveness.”

The programme focuses on the design and development of service/field robotics systems, with an emphasis on the integration of multiple engineering disciplines via Systems Engineering. Students will be trained to deploy integrative elements, such as Software Engineering and Artificial Intelligence (AI), to connect multiple mechatronics elements together to form a complete robotics system.

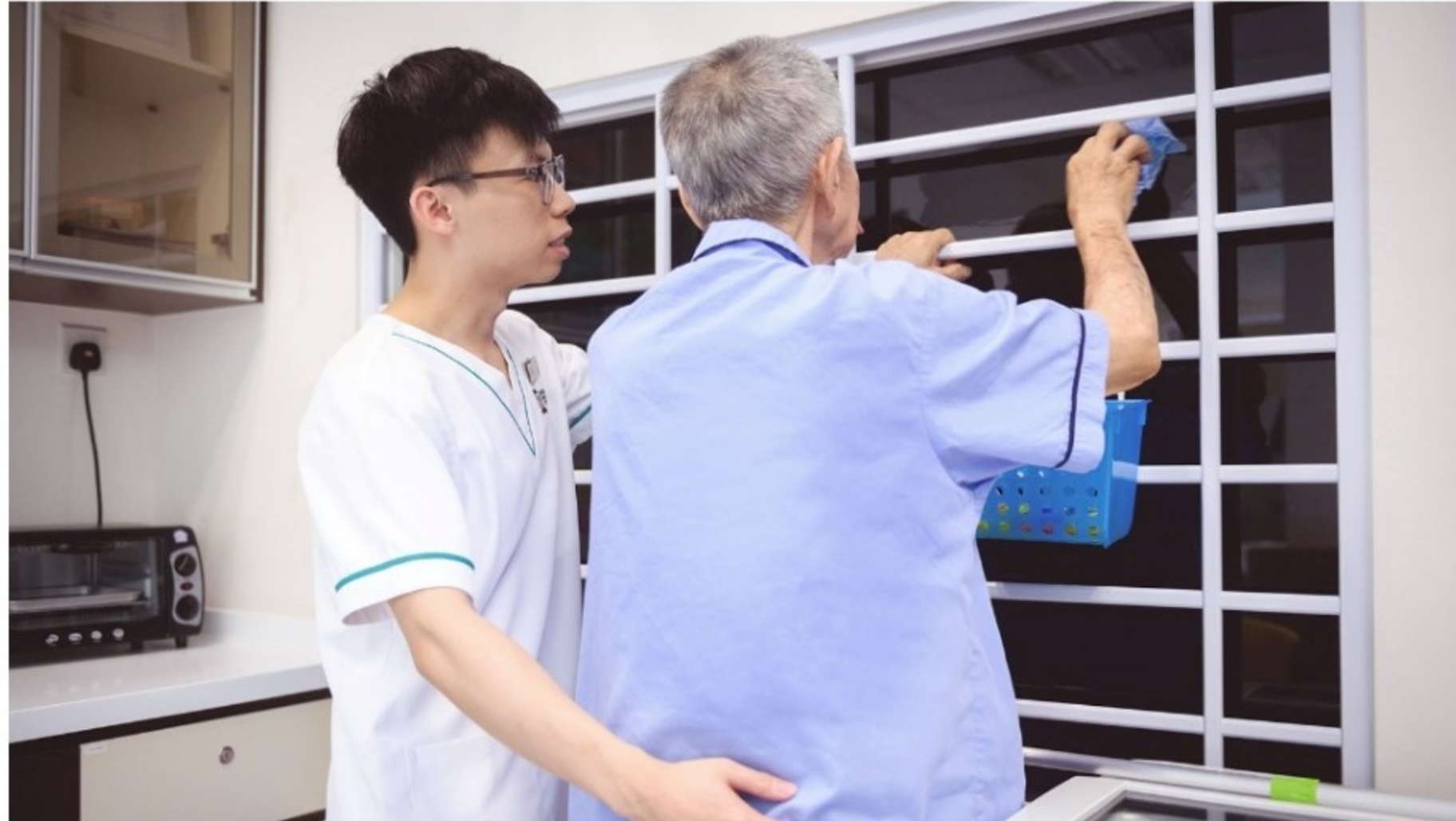
Structured on a project-based and applied learning pedagogy, the programme incorporates a significant amount of learning activities that allow students to simultaneously experience Systems and Software Engineering, Project Management, as well as integration of knowledge from multiple disciplines. Students will go through a 12-month work attachment as part of their Integrated Work Study Programme (IWSP), a distinctive feature of all SIT programmes.

Professor Chua Kee Chaing, Deputy President (Academic) & Provost, SIT, commented: “SIT is constantly growing its suite of programme offerings that are targeted at growth sectors of the economy. Robots are no longer just operating in the factory shop floor, but are also required to work for, and alongside humans in various field applications. Through this new Robotics Systems degree programme, SIT will nurture talents who will make robots operate safely and effectively in the field to benefit industry sectors such as built environment, hospitality and healthcare.”

Study Finds Stroke Survivor's Inactivity Is More Than Just Lack of Motivation

Survey conducted by SIT students showed factors hindering stroke survivors from being active extend beyond a lack of motivation

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In a study led by Assoc Prof Kwah Li Khim, Health and Social Sciences, SIT, and Dr Shamala Thilarajah, Principal Physiotherapist, Singapore General Hospital, a team of Physiotherapy students studied the barriers to physical activity faced by 38 stroke survivors from the Singapore National Stroke Association (SNSA), from June 2019 to December 2019.

They discovered that the top three barriers are:

- Lack of suitable exercise classes or programmes for stroke survivors at fitness centres
- Lack of assistance from fitness centre staff
- Feelings of tiredness or fatigue

Other significant factors preventing stroke survivors from being active include:

- Lack of appropriate exercise equipment at fitness centres
- High membership fees
- Motivation loss
- Concerns about injuries and pains

“Stroke survivors in Singapore walk an average of 5,382 steps a day. This is less than the recommended 6,500 to 8,500 steps a day for people with disabilities or chronic illnesses, and far from the recommended 10,000 steps a day for the healthy population. Physical inactivity is a complex problem that goes beyond the individual. Other than feeling too tired to exercise, lack of motivation, fear of injury and pain, we now know that there are many more barriers stopping stroke survivors from being physically active. These are factors that organisations and the public can help with to make the environment more conducive for stroke survivors to be active,” said Assoc Prof Kwah.

Assoc Prof Kwah and Dr Thilarajah will be collaborating with Sportcares - ActiveSG, Singapore National Stroke Association, and Republic Polytechnic to introduce MOTIVATE: a multi-modal training programme to promote physical activity after a stroke. The programme includes education and training resources for stroke survivors, caregivers, healthcare and fitness professionals on topics like health screening prior to exercise, selection and modification of exercises using gym equipment and adaptive aids such as arm and leg straps. The MOTIVATE programme, which is due for completion at the end of 2022, will also work on establishing a pathway to improve access and use of fitness centres for stroke survivors in Singapore.

“After a stroke, survivors’ ability to perform activities of daily living may be impaired to varying degrees. Inactivity and reduced fitness have many consequences beyond increased risk of stroke. With the MOTIVATE programme, we hope to improve stroke survivors’ access to fitness centres. This is a step towards an inclusive society where stroke survivors have the same access and opportunities to physical activity as the rest of Singapore’s healthy population,” said Dr Thilarajah.

According to the Singapore Stroke Registry published recently, the number of stroke episodes had increased by more than 40 per cent in a decade – from 5,760 episodes in 2009 to 8,326 episodes in 2018. Most strokes are preventable through a healthy diet, regular exercise of at least 150 minutes every week or take 10,000 steps a day, and avoid smoking and drinking too much alcohol.

Discovering Life as a SITizen at SIT's First Virtual Open House

Prospective students and parents gain exclusive insights into the various programmes available for the upcoming AY 2021

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Over the last two weekends of January 2021, SIT held its first virtual edition of the SIT Open House with a series of 30 talks put together by the various clusters, as well as the Student Life and Admissions divisions. The event featured a virtual campus tour to give prospective students and their parents a glimpse into how university life would be like.

At the dialogue session on 'The Value of An Applied Learning Degree in this Disruptive World', moderated by Mr Kelly Koh, Director of Admissions, a panel consisting Prof Chua Kee Chaing, Deputy President (Academic) & Provost, Mr Skye Tan Zhikai, Hospitality Business graduate (Class of 2018) and Marketing Manager, Intercontinental Singapore, as well as Ms Devanshi Patidar, Year 4 Student, Diagnostic Radiography, delved into a deep discourse on how SIT prepares its students for the future workplace.



The panel at the dialogue session 'The Value of An Applied Learning Degree in this Disrupted World' consists of Mr Skye Tan Zhikai, Hospitality Business graduate, Mr Kelly Koh, Director of Admissions, Prof Chua Kee Chaing, Deputy President (Academic) & Provost well as Ms Devanshi Patidar, Year 4 Student, Diagnostic Radiography (from left to right).

"It is important in today's world to practise lifelong learning because, as you know, technology changes very rapidly. For the current generation, you will have multiple careers in a lifetime, so you will have a lifetime of careers, rather than a career of lifetime, as was the case for earlier generations," said Prof Chua, "It is therefore extremely important that we prepare you to be a lifelong learner."



Prof Chua Kee Chaing, Deputy President (Academic) & Provost (left), on the importance of lifelong learning at the dialogue session on 'The Value of An Applied Learning Degree in this Disrupted World'.

Mr Skye Tan recalled one of his classes in SIT that equipped him with the right mindset to face the adversities of the pandemic. He said, "Being a hospitality professional, in this period of COVID-19, it's a real testimony of your grit. In one of the classes taught by an industry professional, he talked about crisis management and how crisis is '危机' 'in Mandarin, which, when you split the words up, means danger and opportunity – I've always remembered that and it applies to the hospitality industry right now. We need to take a look at the current situation and see what opportunities there are right now."

Themed 'Discover Life as a SITizen', the first round of online talks at the SIT Virtual Open House also introduced the programmes available across the Engineering and Infocomm Technology clusters, and also touched on some pertinent trends that have emerged in recent years.

Sessions conducted included 'Admitting the Right Student: What Does SIT Look For?' and a dialogue session, 'The Value of An Applied Learning Degree in this Disruptive World', both conducted by the Admissions team, as well as a session on 'Robotics Systems: Beyond Robot Building', which highlighted the newly launched Robotics Systems degree programme.

At the 'Admitting the Right Student: What Does SIT Look For?' session, Ms Veronica Wong, Deputy Director, Admissions, advised parents and prospective students that when applying for a programme in the university, they should consider these three points: the programmes that best suit the student's aptitude, the type of learning environment that will best suit the student, and the applicability of the training that best prepares the student to be future-ready with relevant skills and knowledge.

In another session on 'Robotics Systems: Beyond Robot Building', Assoc Prof Liew Pak San, Programme Leader, Robotics Systems, highlighted how robotics applications and skilled engineers are crucial to Singapore's economic growth and are needed now more than ever.

"There is anticipated demand for Robotics Engineers – The deepening recession caused by the COVID-19 pandemic is bringing about a surge of robotic applications as companies automate their operations to deliver more value. Also, there will be accelerating applications of robots after the pandemic, which will be critical to both recovery and the future economic growth of Singapore," said Assoc Prof Liew.

When Celebration Comes in a Special Delivery

In place of a party, the Class of 2020 get a New Alumni Welcome Pack to celebrate their graduation

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Like most other key events on SIT's university calendar, the tradition of holding the annual SIT New Alumni Welcome Party to welcome newly minted graduates was disrupted amid social distancing measures. Still, the celebration must go on, and a warm welcome was delivered in a box to the Class of 2020, right to their doorstep.

Inside The New Alumni Welcome Pack were a packet of customised rock candy, a handcrafted soap bar from Rough Beauty founded by alum Ms Chew Jia Tian, a fabric mask with its pouch, and stickers as well as stick-on patches featuring the winning designs by SITizens from the Sticker-Patch Competition held last year.

After participating as a student helper for the New Alumni Welcome Party for the past few years, Mr Shawn Koh, a Sustainable Infrastructure Engineering (Building Services) graduate, shared that he was disappointed at first to know that the party would have to be cancelled due to the COVID-19 outbreak. The New Alumni Welcome Pack, delivered straight to his home, was a pleasant surprise. "Upon receiving the parcel, I was very excited and started sharing photos with my fellow alumni. The items inside were very practical and useful for a time like this," said Mr Koh.

Diagnostic Radiography graduate Ms Jolene Tan was looking forward to receiving her New Alumni Welcome Pack as many of her friends had already received it before she did. "I definitely enjoyed unwrapping and exploring the items in the pack, I thought it was very thoughtful especially in times like this. I like that the mask had a small design at the side and I have stuck the patches onto my room display as a memento," she said.

Going with the Grain

SITizens create wooden accessories and learn about upcycling in the process at the Wooden Jewellery Workshop, organised by the SIT Alumni Leisure Network

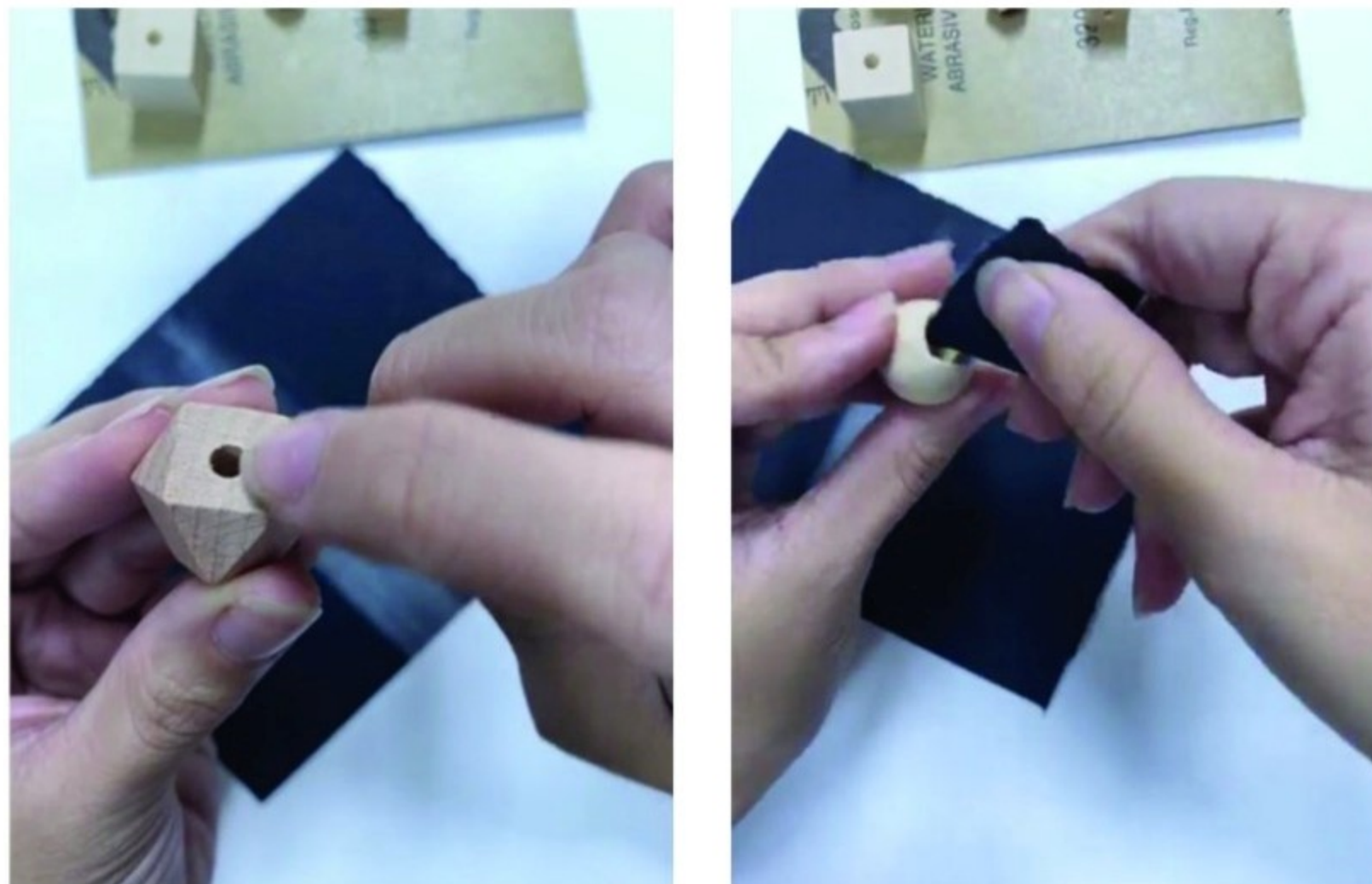
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SIT alumni were recently introduced to woodworking at the Wooden Jewellery Workshop, the latest in a series of DIY crafting workshops organised by the SIT Alumni Leisure Network. Led by Ms Lyn Ng from wood-crafting studio Studio MU YU, the participants learned how to make wooden earrings, necklaces and bag charms.

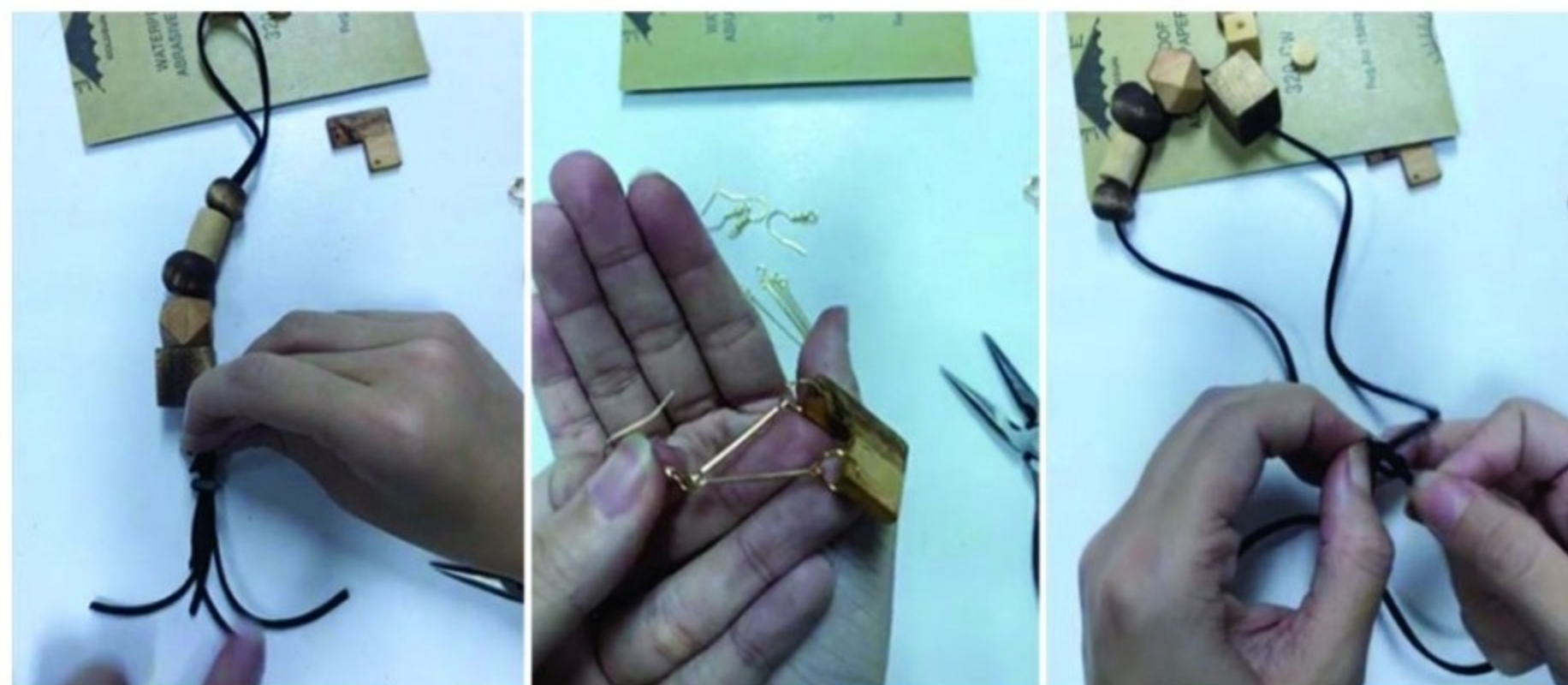
A workshop kit was provided, containing pre-cut wood pieces of various shapes, sandpaper and jewellery hooks. To prepare the pieces for assembly, the participants were taught how to sand them smooth by following the direction of the wood grain. Ms Ng explained that as jewellery is meant to be worn frequently, it is important to ensure that there are no sharp edges then can accidentally cut you.

They then had to use wood stain and wood oil to add a layer of protection and leave a nice finish for their pieces. Ms Koh Shi Yi, a Chemical Engineering alumnus, found the process tedious but worthwhile. "The little steps like sanding the small pieces take a lot of time and patience, but I think the process is quite rewarding," she said. "Maybe in the future I could get more materials to make gifts."



Ms Ng demonstrates how to identify the wood grain and recommended ways to sand different shapes.

The participants then made use of jump rings and jewellery hooks to put their pieces together. While guiding them on the process, Ms Ng also emphasised the importance of hygiene and proper storage as the metal parts can start to rust or oxidise when exposed to air for long periods of time.



Using string, rods and wooden pieces, SITizens made a bag charm (left), earrings (centre) and a necklace (right).

Although not a wearer of accessories, Information and Communications Technology alumnus Mr Chong Hiu Fung enjoyed learning how to customise something for himself rather than buying an already finished product. "I have always wanted to try similar projects," he said. "I have worked mostly with plastic material, so it's fun learning about how to handle wood and the different ways to treat wood products."