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BEYOND A LEVELS SPECIAL | B21

Designing drugs safely

HAZEL TAN

WHEN Ms Sheryl Lim was preparing to sit for her A-level examinations, she did not have a concrete plan for her future.

Now a first-year pharmaceutical engineering undergraduate at Singapore Institute of Technology (SIT), her advice is to consult trusted mentors and loved ones to find out where your interests lie and keep an open mind.

The 19-year-old, who has always enjoyed studying chemistry, is intrigued by the human body's reaction to drugs.

While she explored the option of doing a diagnostic radiography diploma in the polytechnic, she knew a university degree was what she wanted.

But when it came down to choosing between a science degree in the National University of Singapore and an engineering degree in pharmaceutical engineering in SIT, it was not an easy decision.

After consulting many people from the healthcare and pharmaceutical industries, she eventually chose to read pharmaceutical engineering.

"I want to work in the healthcare sector, and specifically in pharmaceuticals, as I have a keen interest in understanding how the human body reacts and responds to drugs," she says.

Effective pathway

In a nutshell, pharmaceutical engineering is about mathematics and drug production, says Ms Lim.

While pharmaceutical engineering is closely related to chemical engineering, SIT's programme focuses primarily on the development and manufacture of the two largest classes of pharmaceutical drugs — biologics and small molecule drugs.

She explains: "I will be trained in mathematical modelling to design an effective pathway for the drugs to be produced, and to get familiarised with the biological effects of specific chemical stimuli.

"I am most interested in under-



Ms Lim believes having a well-rounded education at SIT will stand her in good stead when she enters the workforce. PHOTOS: CHONG JUN LIANG

standing the manufacturing process of drugs, the precautions and safety requirements to be implemented before distribution, and the effects the drugs have on biological life forms."

In part, the university's offer of direct honours programmes influenced her decision to enrol in SIT.

She will graduate with a Bachelor of Engineering with Honours in pharmaceutical engineering in 2019.

"SIT's courses and modules are designed to equip students with the necessary skills for immediate industrial application upon graduation.

"For instance, there is an eight-month Integrated Work Study Programme (IWSP) that provides students a platform to gain practical experience in their respective fields," she says.

Beat the learning curve

Ms Lim, who is in her second trimester, finds that university life has been vastly different from her expectations so far.

The workload is more demanding and there is a constant challenge to think out of the box, she says.

"As university students, we are expected to be proactive and take ownership of our learning. Gone are the days of 'spoon-feeding' in school," she adds.

Ms Lim is confident that her all-rounded education in SIT will stand her in good stead when she enters the workplace.

She says: "The courses in SIT are industry-targeted. They are designed to allow students to gain useful practical skills when they enter the workforce.

"The theories may be simple to grasp, but applying them in real life is another matter altogether.

"Students are afforded the opportunity to obtain practical experience in their respective sectors as it is integrated within the curriculum, which makes for a very attractive proposition."

For now, she is likely to specialise in biologics upon graduation since she has a background in biology.

"Eventually, I hope to design and manufacture vaccines at affordable prices for people in countries that lack the technology and means of obtaining the medicine," she says.