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Headline: Local universities embrace Smart Nation challenge with related courses

THEY ALSO BENCHMARK CYBERSECURITY SPECIALISATIONS AGAINST INTERNATIONAL STANDARDS

Local universities embrace Smart Nation challenge with related courses

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SINGAPORE – Local universities are stepping up education efforts in the area of cybersecurity with new initiatives. These include benchmarking cybersecurity specialisations against international standards and introducing new cyber-information security degrees at the Bachelors and Masters levels.

These initiatives come at a timely juncture. In November, the Prime Minister announced plans for Singapore to establish itself as a Smart Nation.

He also made an appeal during a conference in April, on the Republic's Smart Nation drive, for members of the public and the private sector to render assistance. One of the concerns highlighted then was the industry's small talent pool.

Local universities contacted by TODAY cited the industry's growing importance, particularly in the field of cybersecurity technologies, as a key reason behind moves to enhance and introduce related courses.

Professor Steven Miller, dean of Singapore Management University (SMU) School of Information Systems, said the rising demand for professionals skilled in mitigating cyber-

attacks was what led to the creation last year of the school's Information Security and Assurance track.

Over the past three years, the school has rolled out cybersecurity-related courses every year. A new course, Data Security and Privacy, will be introduced this August. Interested SMU students can take up cybersecurity courses as a second major.

The school also plans to introduce a new course, The Internet Of Things, which will expose students to a new wave of technology and extend the boundaries of the Internet into the realm of the physical world. Examples include smart vehicles able to detect traffic conditions and smart homes.

At the National University of Singapore (NUS), a new degree programme, Bachelor of Computing in Information Security, is scheduled to commence in August with an inaugural batch of about 40 students.

Conducted by the School of Computing, the course aims to equip students with a computing foundation, as well as a deep understanding of both technical and management issues in information security.

Meanwhile, the Singapore University of Technology and Design (SUTD) has plans for a Masters cybersecurity degree programme in future. Current-

ly, the university provides graduates in Information Systems Technology and Design with relevant skills in the area, including IT security. All its students are also exposed to the Laboratory for Identifying Paths for Security Programme. Established in 2013, the programme trains SUTD students in cyber- and cyber-physical security.

Also enhancing its cybersecurity-related courses is the Nanyang Technological University (NTU) School of Computer Engineering.

The university plans to enhance its Cryptography and Network Security specialisation, which started out as a single module, but has been expanded to a specialisation programme from last August, with international industry certifications.

And class sizes were expanded from 80 to 120 students this year, because of a high demand, said the school's chair, Professor Thambipillai Srikanthan. The school also plans to start a general elective, Introduction to Cybersecurity, which will be open to all students in NTU soon, he added.

Mr Anthony Lim, a cybersecurity expert at ISC2, or International Information Systems Security Certification Consortium, noted that these initiatives were very encouraging to students who wish to pursue a degree



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Mr Chong Rong Hwa
SENIOR STAFF MALWARE RESEARCHER, FIREEYE



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locally in cybersecurity.

"Any syllabus (in cybersecurity) is better than none. At least a programme is in place," he said, adding that it is crucial that courses in these new disciplines focus on equipping students with the fundamentals and hands-on experience.

"You can't train the students to keep up with the latest threats. What's important is that you have the basic foundation (of computer network and infrastructure). Then, it's easy to understand where the threats come from," said Mr Lim.

Senior staff malware researcher from network security company FireEye, Mr Chong Rong Hwa, agreed that students pursuing a career in cybersecurity should obtain hands-on experience. "Fresh graduates sometimes lack an understanding of how security is applied in the real world. It's important to look beyond technical aspects of a problem to see its risks and business impacts," he said.

Third-year SMU student Chua Min Xuan, 25, who is pursuing the Information Security and Assurance track as his second major, said his interest in cybersecurity was fuelled by the sector's potential growth: "You see more and more (cyber) crimes ... There's a lot of room (for career development) ... and headcount is needed in the area."

Fellow course-mate Teh Kaiwen, 27, said the growing relevance of cybersecurity as a reason behind his interest. With the Internet of Things surfacing in the local context, this would translate to more cybersecurity areas requiring attention, which were never considered before, said Mr Teh.