TAKING GRADUATE EDUCATION TO GREATER HEIGHTS

Dean of NTU’s Graduate College Professor K. Jimmy Hsia shares how the College is helping to shape graduate education and research at NTU.

While it may not be everyone’s cup of tea, graduate education and qualifications beyond the bachelor’s degree do carry some perks when it comes to job hunting. As employers demand stronger leadership skills and deeper technical know-how, higher qualifications like the Master of Business Administration and the Doctor of Philosophy can give aspirants an edge in a job market that is increasingly global and competitive.

Universities, being hubs of higher education and vocational training, have a role to play in tailoring education programmes that equip individuals with the knowledge and skills to thrive in the modern economy. As one of the world’s top young universities, NTU is seeking to do more to improve the scale, scope, quality and impact of its graduate education and research.

“We have 37 PhD degree programmes and more than 70 master’s degree programmes at NTU,” said Professor K. Jimmy Hsia, founding Dean of the Graduate College, NTU. “Many of them are ripe for review because ten years ago, the standards, the faculty and the students were very different.”

Excellence across the board

Having served as the Associate Dean of the Graduate College and Associate Vice Chancellor for Research at the University of Illinois Urbana-Champaign, and the Founding Director of the Nano & Bio Mechanics Programme at the US National Science Foundation, Prof Hsia is no stranger to refining graduate education programmes at institutions of higher learning. Now at NTU, he has formed the Graduate College Executive Committee, responsible for reviewing, debating, evaluating and eventually recommending new initiatives and changes to graduate education programmes.

Already, Prof Hsia notes the need to develop policies and processes to guarantee that the quality of graduate education is high and relatively uniform across the various schools in NTU. Currently, some graduate education programmes are better designed than others in terms of structure, content or course load. What the Graduate College seeks to accomplish is assess these success stories, identify best practices, then share them with other schools so that they too may implement strategies that benefit their graduate students.

“No programme elements have worked out beautifully for some schools and produced highly versatile and capable graduate students. We don’t know whether those practices can be transplanted to other schools, but the Graduate College should at least be the body that gathers and safeguards institutional knowledge of what’s important and critical for successful graduate education,” said Prof Hsia.

No more silos

In addition to sharing best practices, Prof Hsia wants to strengthen the interdisciplinary aspect of graduate education and research at NTU. Graduate education programmes run by
individual schools and colleges tend to be structured according to their specialty disciplines, and this forms an intrinsic barrier to interdisciplinary thinking.

“You do need in-depth understanding of a particular field in order to do high quality research in science and engineering fields. But by exposing students to multiple different disciplines, new ideas come up and perhaps new fields can be developed,” Prof Hsia said. Hence, the Graduate College is helping schools tweak their graduate education programmes such that students are given the option to explore areas beyond their core discipline.

Graduate education programmes will also be better aligned with NTU’s ‘peaks of excellence’—sustainable Earth, secure community, healthy society and global Asia—meant to address national needs and global issues. Together with research centres like the Energy Research Institute @ NTU and corporate/joint laboratories such as the Alibaba-NTU Singapore Joint Research Institute, graduate students will have numerous opportunities to carry out interdisciplinary research with real-world impact.

“What the Graduate College can also do is support the concept of interdisciplinary education and research. If a faculty member proposes a ‘crazy’ idea that demands an unconventional mix of disciplines, as long as the idea has merits, we can provide him or her with resources such as PhD scholarships to develop the idea further,” he said.

Broadening horizons

Beyond interdisciplinary research and technical competency, Prof Hsia thinks that graduate students should also be trained in communication and writing, research integrity and ethics, and have opportunities to learn something about entrepreneurship, leadership and other soft skills.

“Twenty years after you graduate, how much of the technical stuff you learnt in university would still be relevant and used heavily? Quite a bit may have become obsolete. What would still be relevant as you rise along the career ladders are your soft skills, such as communication and persuasion,” he said.

For example, to help graduate students become better communicators, the Graduate College has established a requirement for communications training for all PhD students. The programme includes an intensive 19-hour course that focuses on helping students present their technical ideas and research findings in an accessible manner, be it in speech or in writing, and a university-wide three-minute thesis competition as a means to get graduate students to condense their entire thesis into a succinct and understandable presentation for a non-expert audience.

Prof Hsia further noted that it was important to engage the right schools to provide the best training in specific soft skill areas. This entails working closely with the Wee Kim Wee School of Communications and Information and the Nanyang Business School, among others, to add value to graduate education programmes.

“What we want, at the end of the day, are individuals who are not just comfortable working at the interface of different scientific fields, but who can also be leaders and advocates for their research on the global stage,” said Prof Hsia.

“Twenty years after you graduate, how much of the technical stuff you learnt in university would still be relevant and used heavily? Quite a bit may have become obsolete. What would still be relevant as you rise along the career ladders are your soft skills.”

— Professor K. Jimmy Hsia