A SKILLSFUTURE WORK-STUDY DEGREE

BACHELOR OF TECHNOLOGY IN COMPUTING

Offered by NTU School of Computing Science and Engineering, the Bachelor of Technology (BTech) in Computing, a SkillsFuture Work-Study Degree (WSDeg) programme, immerses students in authentic learning through a curriculum founded on collaboration with key industry partners and facilitated by highly qualified NTU faculty members as well as industry practitioners.

Designed in a stackable structure, students need to complete all the 3 stacks in the programme which are, namely, Foundation Stack, Specialist Stack and an Industry Immersion Stack, to be awarded the full degree qualification.

This WSDeg programme allows students to study at their own pace, with minimal disruption to their work commitments, with the following specialisations delivered modularly on a part-time basis:

Software Engineering — **Artificial Intelligience Engineering** — **Cybersecurity**
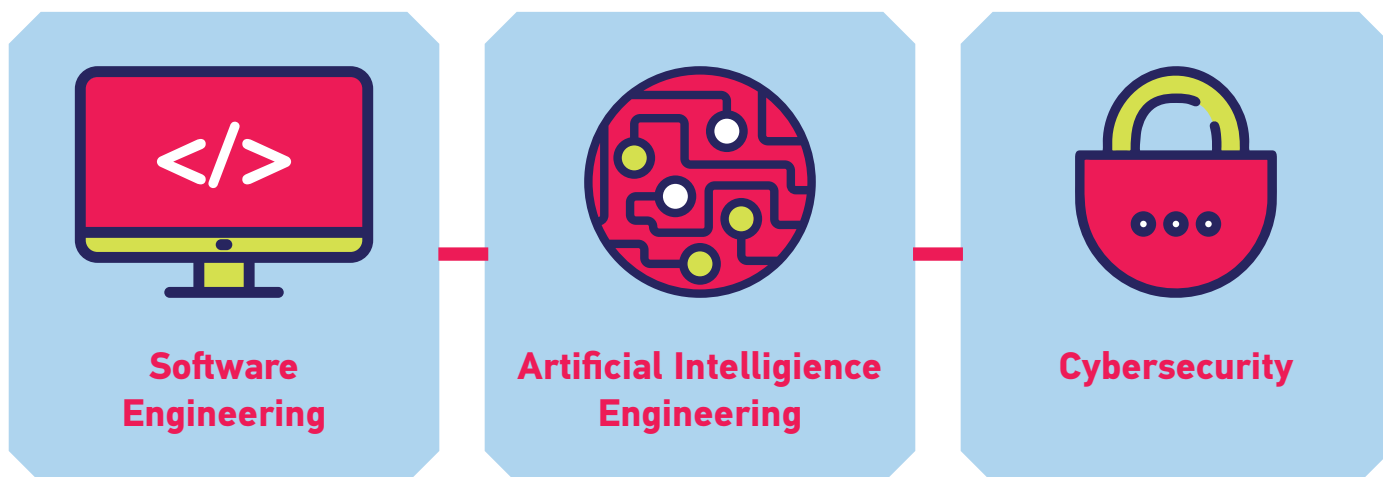
For the Foundation and Specialist stacks, the programme recognises the successful completion of all respective modules through awarding a Professional Certificate at the end of each stack. As part of the on-the-job training in the final year of the programme, students are required to complete a full-time industry immersion related to their choice of specialisation.

WHY APPLY FOR THIS PROGRAMME?

Upgrade from a local diploma or work-study diploma to a Bachelor's degree for more career growth opportunities.

Be immersed in a training curriculum that has a strong industry-focus.

Build, validate industry skills and knowledge.

Gain opportunities to pivot into a role in the information technology industry area.

Study at an individualised pace, with minimal disruption to work commitments.

LEAD THE CHANGE, INNOVATE THE FUTURE

Ride the digital wave as an IT professional to make a difference and play a part in revolutionising the way we live, work and play.

The School of Computer Science and Engineering (SCSE) has the state-of-the-art equipment to support and complement our broad-based and comprehensive degree programmes. Our stimulating environment, along with our reputable faculty, will inspire you to be among an elite group of professionals pioneering and designing solutions to the challenges ahead.

This is the place where possibilities become reality.

Top Reasons to Choose SCSE

Ranked #6 worldwide in the world for Computer Science by US News and World Report's Best Global Universities 2023
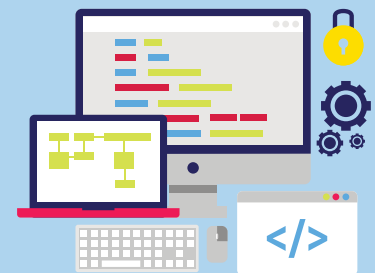
Gain access to **state-of-the-art research and learning facilities**

Get a myriad **experiential learning opportunities**

Stay ahead of the curve with our **industry-relevant and well-rounded curriculum**

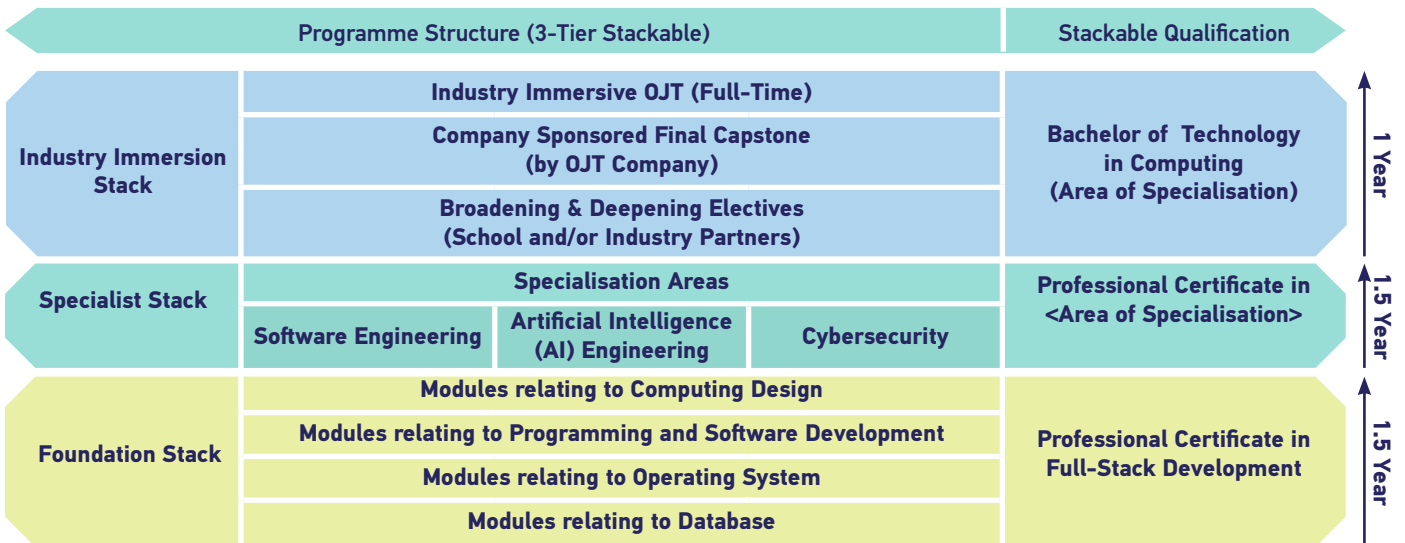Learn from **internationally-renowned faculty** who are experts in their fields.

On-the job training within curriculum

PROGRAMME DURATION

4 years.

Note: *Programme(s) will only commence if the minimum intake size is met. An email will be sent to you at least three weeks before programme start date in the event that cancellation is necessary.*

Bachelor of Technology in Computing (WSDeg)

Programme Structure (3-Tier Stackable)			Stackable Qualification	
Industry Immersion Stack	Industry Immersive OJT (Full-Time)		Bachelor of Technology in Computing (Area of Specialisation)	1 Year
	Company Sponsored Final Capstone (by OJT Company)			
	Broadening & Deepening Electives (School and/or Industry Partners)			
Specialist Stack	Specialisation Areas		Professional Certificate in <Area of Specialisation>	1.5 Year
	Software Engineering / Artificial Intelligence (AI) Engineering / Cybersecurity			
Foundation Stack	Modules relating to Computing Design		Professional Certificate in Full-Stack Development	1.5 Year
	Modules relating to Programming and Software Development			
	Modules relating to Operating System			
	Modules relating to Database			

OVERVIEW OF COURSES

First Stack: Foundation

Core Courses

- Data Structures and Algorithms
- Introduction to Computer Architecture and Networks
- Object Oriented Design and Programming
- Software Engineering
- Operating Systems
- Algorithm Design and Analysis
- Introduction to Database
- Introduction to Computer Security
- Design Thinking
- Project Management (Business Needs Analysis & Risk Analysis)
- Data Analysis & Market Sensing (Business Intelligence)
- Mini Capstone (Full Stack) Project

Second Stack: Specialist

Software Engineering Specialisation

- UX/UI Design
- World Wide Web technologies and Applications
- Advanced Software Engineering
- Software Testing
- Data Science and Analytics
- Big Data Management
- Data Visualisation
- Cloud Computing

Cybersecurity Specialisation

- Software Security Principles
- Application Security
- Security Management
- Applied Cryptography
- Concepts and Technique of Malware Security
- Cyber Threat Intelligence
- Network Security
- Digital Forensic

AI Engineering Specialisation

- Introduction to Artificial Intelligence
- Machine Learning Fundamentals
- Principles of Deep Neural Network
- Computer Vision for AI
- Natural Language Processing Fundamentals
- Big Data Management
- Data Visualisation
- Cloud Computing

Common Specialisation Modules

- Mini Capstone (Specialisation) Project
- Any 3 modules in other specialisations

Final Stack: Industry Immersion*

Industry Immersion Modules

- 3 x Broadening & Deepening Electives
- Industry OJT Modules
- Industry Capstone Project

*Student must be working in a job role related to the degree specialisation as fulfillment of the Final Stack of the programme

ADMISSION REQUIREMENTS

The eligibility criteria for enrolment into the BTech in Computing (WSDeg) programme are as follows:

Accepted Educational Qualifications:

Singapore-Cambridge GCE A-Level

Diploma from local polytechnics or equivalent institutions

International Baccalaureate (IB) Diploma

NUS High School (NUS HS) Diploma

Other recognized qualifications

Note: *Candidates who do not meet the educational requirement but have demonstrated relevant work experiences and/or relevant competencies (e.g. well-recognised skills/professional certifications) would be reviewed and admitted on a case-by-case basis.*

Additional compulsory requirements:

1   At least 21 years of age^ as at 31 July of the admission year;

2   Have 2 years of full-time working experience^, or currently employed on a full-time basis, **or** Singaporean/SPR males who have or will be fully discharged from their full-time NS liability before school term start date.

3   Passed the five pre-requisite bridging modules at the point of matriculation.

^ Applicants may be granted exemptions from the age and work experience eligibility criteria if:
- *Sponsored by the company for the study of the part-time undergraduate degree programme offered; or*
- *Currently employed in a job role/sector related to the part-time undergraduate degree programme offered.*

Important points to take note:

- Full-time NSmen (NSF) will not be eligible for disruption from NS for the purpose of pursuing part-time undergraduate education.

- For self-employed individual (e.g., Freelancer, Sole Proprietor), you may be required to submit additional supporting documents for further evaluation.

- Part-time employment^ will not be considered as full-time working experience.

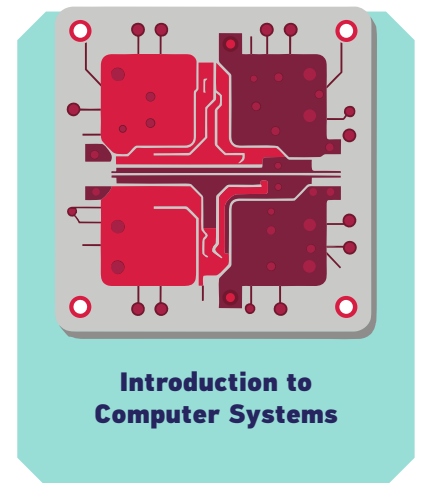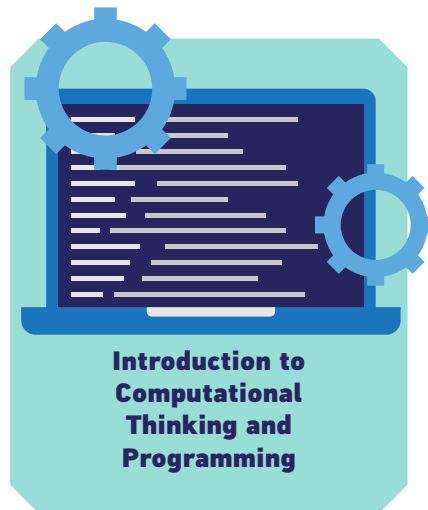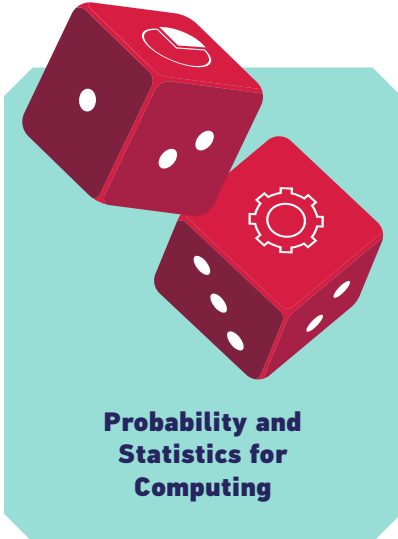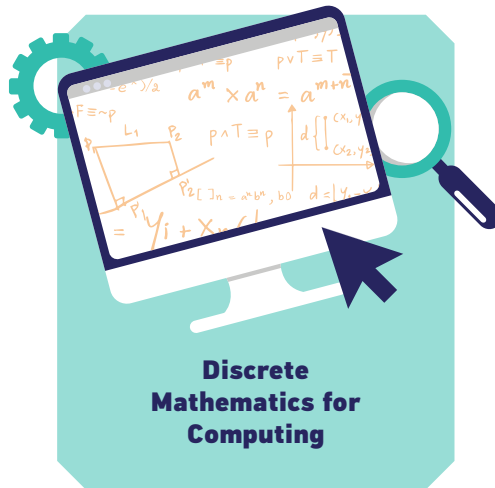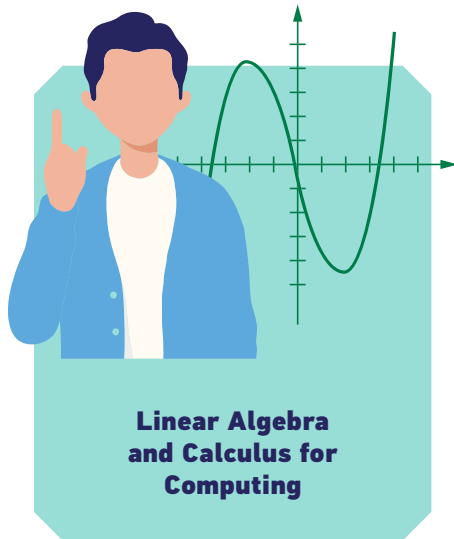Tuition Fee Subsidy is only available to Singaporeans and Singapore PR holders.

^A part-time employee is one who works for less than 35 hours a week, under contract of service with an employer.

BRIDGING MODULES

The BTech in Computing (WSDeg) bridging modules are aimed at strengthening the foundation of students and prepare them for transition into studying a Computing degree. These modules will help applicants evaluate their academic aptitude to undertake the rigour of a Computing degree before committing to the 4-year WSDeg programme and make an informed switch towards a professional career in Computing in time to come.

To enrol for the BTech in Computing (WSDeg) programme, students are required to pass the following bridging modules.
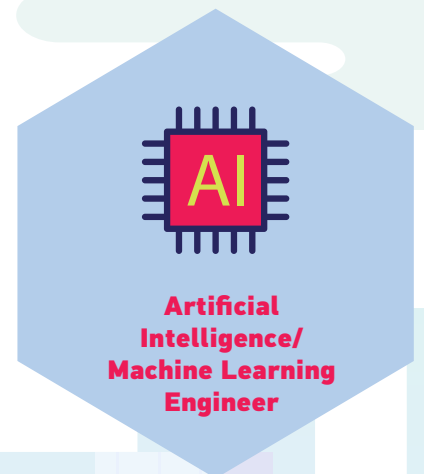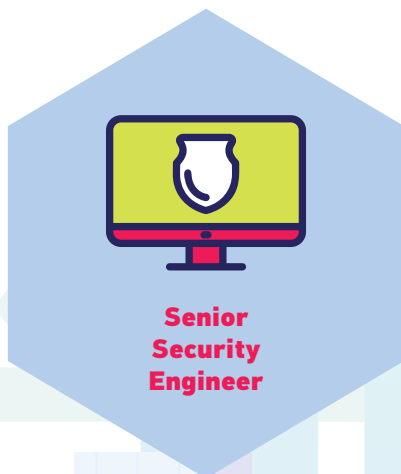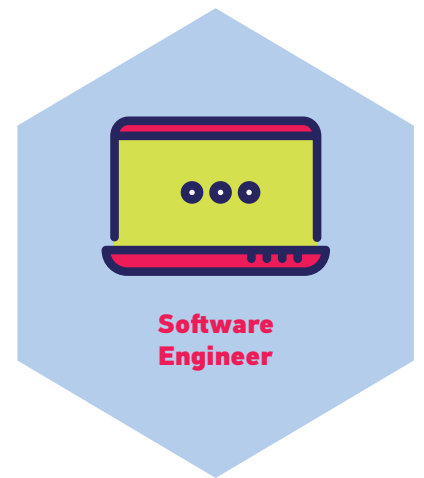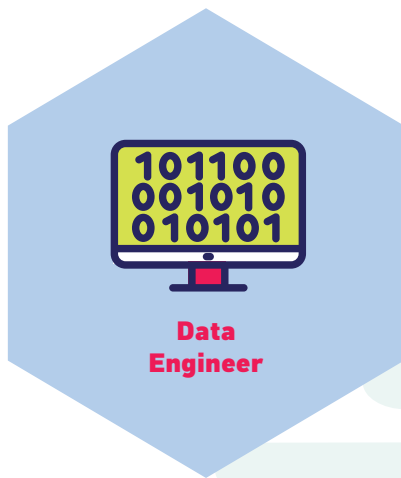
The five bridging modules are:

Linear Algebra and Calculus for Computing

Discrete Mathematics for Computing

Probability and Statistics for Computing

Introduction to Computational Thinking and Programming

Introduction to Computer Systems
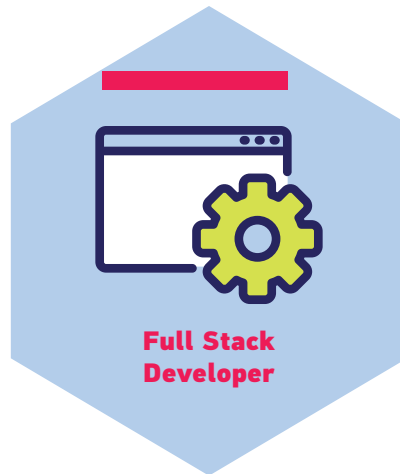

Each of the five bridging modules will be offered as a 6-week online course, with online course material to review, practice problems to work on and regular weekly scheduled online consultation with a NTU faculty. There will be an onsite assessment at the end of each module run, which applicants will have to pass in order to matriculate into the WSDeg BTech. in Computing programme that they have been offered.

Note: *Each registration allows students have access to the course material, course consultation and attempts at the module onsite assessment for a period of 1 year. Each bridging module will be offered twice each academic year. Students can register for the bridging modules after they receive their offer. After a 1-year time limit, students will have to re-register and pay the required subscription again on a per module basis.*

TOP CAREER OPPORTUNITIES AFTER COMPLETING THE BTECH IN COMPUTING (WSDEG) PROGRAMME

Full Stack Developer

Data Engineer

Software Engineer

Cyber Risk Analyst

Senior Security Engineer

Artificial Intelligence/ Machine Learning Engineer

Product Manager

CONNECT WITH US

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