NANYANG
TECHNOLOGICAL
UNIVERSITY
SINGAPORE

College of Computing
and Data Science

→ B. COMP(HONS) IN

Artificial Intelligence (AI) and Society

POWERED BY
GenAI

NTU
SINGAPORE

NTU. It all starts here.

Lead the change, innovate the future.

AI is not just a technological wave; it's a transformative force shaping our world. Discover NTU's Bachelor of Science (Hons) in AI and Society — a world-class program for forward-thinking individuals seeking to explore this intersection of technology and societal impact.

Key benefits

Join us in actively shaping the future of innovation. Ride the digital wave as an AI Expert for social good to make a difference and play a part in revolutionising the way we live, work and play.

STRONG TECH FOUNDATION WITH ETHICAL INSIGHT	REAL-WORLD SOLUTIONS & RISK MANAGEMENT	SOCIALLY CONSCIOUS GRADUATES IN AI WORLD
Students will be provided with a strong technical foundation in AI while cultivating a deep understanding of the societal and ethical implications of AI applications across diverse domains.	Equipped with relevant knowledge and skills necessary for creating AI-based solutions to real-world problems, students will develop their capacity to identify and address societal risks associated with such solutions across the entire AI lifecycle.	Graduates will be socially conscious with strong analytical and problem-solving capabilities, well-equipped to thrive in an increasingly fast-paced AI-driven world rife with both opportunities and profound ethical challenges.

A global hub for AI

NTU Singapore has earned its status in AI innovation through a combination of world-class faculty, cutting-edge facilities, and a commitment to pioneering advanvement in artificial intelligence.

NTU's College of Computing and Data Science

The new College of Computing and Data Science (CCDS) will serve as a platform to deliver industry -relevant degree programmes that will train students to not just be comfortable but also fluent in AI. It will also accelerate interdisciplinary collaboration between computing and other disciplines in NTU Singapore.
It will elevate NTU's standards of education and research to foster the development of the next generation of socially conscious leaders, thinkers, and innovators.

Our smart and sustainable campus

features state-of-the-art equipment to support and complement our broad-based and comprehensive degree programmes.

Discover how NTU 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.

Among the world's best universities for AI

#2
WORLDWIDE
for Artificial Intelligence

#6
WORLDWIDE
for Computer Science

US NEWS AND WORLD REPORT'S
BEST GLOBAL UNIVERSITIES 2023

6 reasons to choose College of Computing and Data Science

1 Get a myriad of experiential learning opportunities

2 Gain access to state-of-the-art research and learning facilities

3 Be a global citizen with our comprehensive overseas immersion programmes

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

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

6 Enjoy university life with exciting student activities and residential education

Curriculum

Bachelor of Computing (Hons) in AI and Society is a 4 year full-time undergraduate programme.

YEAR 1 + YEAR 2

Foundational Modules in Computer Science and AI
- Introduction to Computational Thinking & Programming
- Data Structures & Algorithms
- Mathematics Modules – Probability & Statistics, Linear Algebra for Scientists & Discrete Maths
- AI, Machine Learning, Neural Networks & Deep Learning

Interdisciplinary Collaborative Core (ICC) Modules

Essential Modules in AI Ethics and Society
- AI for Social Good
- AI for Society
- Ethical AI

Broadening & Deepening Electives

YEAR 3

Group Design Project
- Guided practical implementation of Responsible AI in teams

AI Core
- Natural Language Processing
- Computer Vision
- Intro to Generative AI

Two MPE courses from
- Technical Group and/or Society Group

Professional Internship
- Semester 2

Broadening & Deepening Electives

YEAR 4

RAI Capstone Project
Balance six MPEs from the groups below.

<u>Technical Group MPEs</u>
- Intelligent Agents
- Blockchain Technology
- Large Language Models
- Generative Learning for
- Computer Vision
- Deep Generative Models

<u>Society Group MPEs</u>
- Person & Society
- Law of IP & New Media
- Social Entrepreneurship
- Classical Social Theory
- Principles of Economics
- Fundamentals of Politics

Broadening & Deepening Electives

Students will choose at least two MPEs in Year 3 and remaining six MPEs in Year 4 from the Society and Technical MPE pathways to deepen their interdisciplinary knowledge in later years.

MPE = Major Prescribed Electives
RAI = Responsible AI
BDE = Broadening & Deepening Electives

Overview of courses

Total Academic Units (AUs): 131			
Year of Study	Major Requirement (81 AUs)	Interdisciplinary Collaborative Core Requirement (32 AUs)	BDE (18 Aus)
YEAR 1 Acquire basic concepts in mathematics, computing fundamentals and AI potential for social good	- Introduction to Computational Thinking & Programming - Linear Algebra for Scientists - Object Oriented Design & Programming - Data Structures & Algorithms - Discrete Mathematics - Probability & Statistics for Computing - AI for Social Good	- Ethics & Civics in a Multicultural World - Healthy Living & Well-being - Inquiry & Communication in an interdisciplinary World - Navigating the Digital World - Introduction to Data Science and AI	BDE 1
YEAR 2 Delve deeper into the courses in the AI & responsible AI	- Algorithm design and analysis - Artificial Intelligence - Machine Learning - Neural Networks & Deep Learning - AI for Society - Ethical AI	- Sustainability: Society, Economy & Environment - Career & Innovative Enterprise for the Future World - Science & Technology for Humanity - Communication Across the Sciences	BDE 2 BDE 3
YEAR 3 Further deepening in AI applications and practice of Responsible AI skills	- Natural Language Processing - Computer Vision - Group Design Project – AI in Society - Major Prescribed Elective (MPE 1 to 2) - Professional Internship		BDE 4
YEAR 4 Flexible specialization choices and a RAI project	- RAI Capstone Project - Introduction to Generative AI - Major Prescribed Elective (MPE 3 to 8)		BDE 5 BDE 6

Programme distinctives

Acquire the skills of tomorrow while cultivating a forward-thinking and adaptable mindset.

Curriculum Design

The curriculum provides a **strong technical foundation** in AI and extensive practical exposures to **ethical AI** system design, development, and deployment in real-world settings and across the entire AI lifecycle. It exposes students to issues related to the societal impact of using of AI technology and how some of these AI risks can be identified and mitigated.

Essential Modules in AI Ethics and Society

- **AI for Social Good** introduces students to numerous AI social-impact use cases that will demonstrate how existing AI technologies could contribute to tackling cases across all 17 of the UN's sustainable-development goals, potentially helping societies in both advanced and emerging countries.

- Ethical AI, provides students with an understanding of the myriad of ethical issues and potential risks involved in the design, development and deployment of AI systems, including ways to mitigate such risks using industry-established tools and toolkits across the entire AI lifecycle.

- AI for Society introduces the latest emerging development and applications of AI in different domains (e.g. healtcare, fintech, etc.) Student will learn about the urgent issues at the intersection of AI and society that needs addressing, including the discussion of AI generated IP and copyright, amplification of misinformation and the fast-changing AI regulatory landscape.

  To encourge a better balance of knowledge from both technical and societal aspects, student will take at least two Major Prescribed Electives (MPE) from each of the baskets of Society and AI Technical elective.
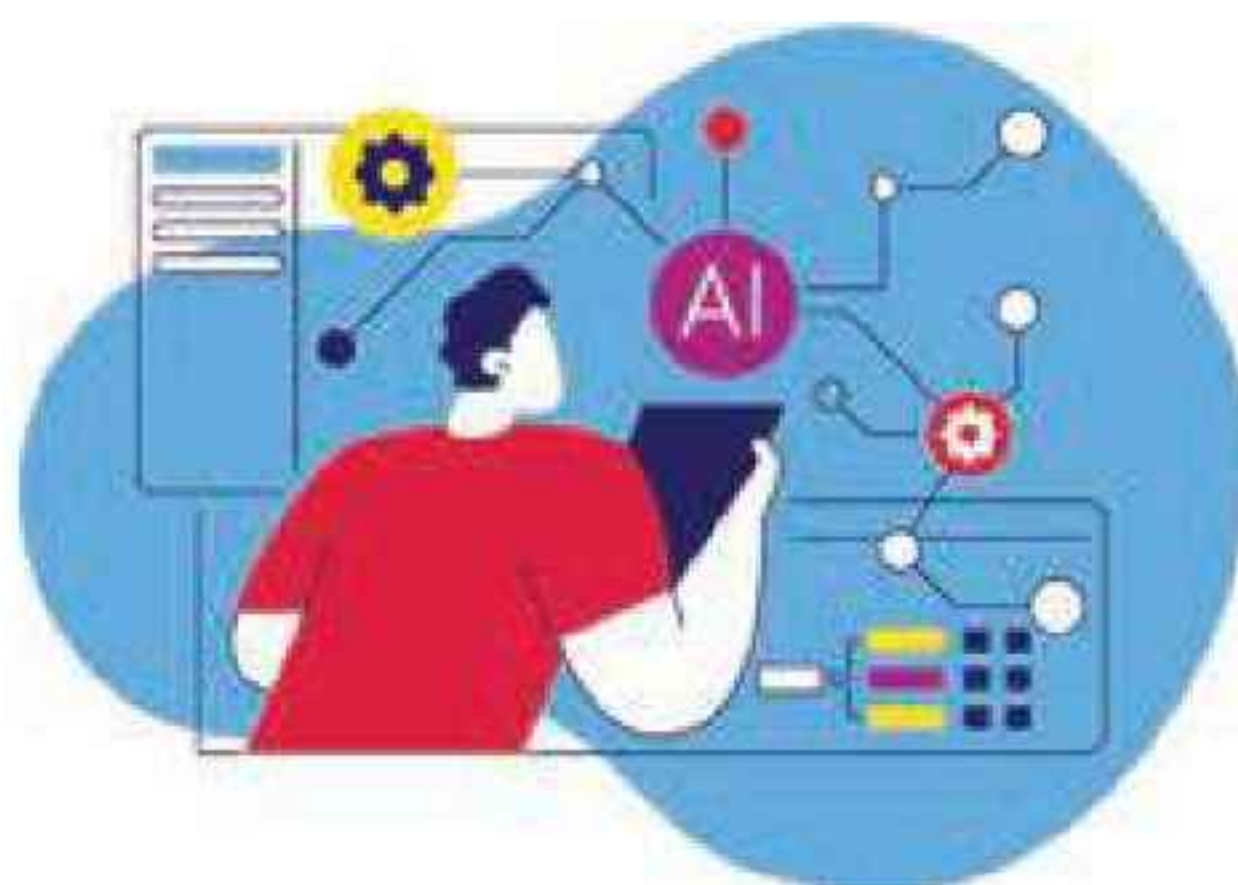
Group Design Project

The AI in Society group project engages students in a **collaborative team effort** to design, develop and deploy a responsible AI solution. Throughout this project, students are guided through the practice of ethical AI across the entire AI lifecycle. This **hands-on experience** allows students to apply theoretical knowledge to practical, real-world scenarios, fostering a deeper understanding of responsible AI and how it can be implemented.

Professional Internship

Students will undergo a **20-week internship** in an organisation that will provide them an opportunity to actively participate in their AI-based projects. They will contribute by sharing and putting into practise the Responsible AI know-how they acquired during the Group Design Project.

Responsible AI (RAI) Capstone Project

Through the RAI project, students can contribute to the design and development of a beneficial AI solution for a specific social or industrial sector of their choice. This project provides students with an opportunity to make a positive impact by **applying their knowledge and skills in responsible AI to a real-world problem** of their interest.

A world of opportunity

Become a force of innovation within society with our undergraduate degree in AI and Society.

The field of AI has experienced rapid advancement, and the widespread application of AI technologies has delivered substantial benefits to society. However, the pervasive use of AI also carries significant ethical risks when these technologies are not developed and applied in a socially responsible manner.

In the current landscape, there is an urgent need to instil ethical values and practices in the technologists and practitioners in the AI field. This ensures that they are equipped to navigate the evolving AI landscape responsibly, utilising their knowledge and skills to both serve and protect society while maximising the positive impact of AI.

Career prospects

Graduates of this programme will be well-positioned to meet the growing demand for ethical AI specialists in a rapidly expanding market and contribute effectively to a plethora of industries.

They can take on the traditional AI roles, and more importantly, they are uniquely equipped to take on emerging Responsible AI roles.

- AI/ML Engineers
- AI Scientist
- AI Policy Advisors
- Ethical AI Consultants
- Responsible AI Strategist
- AI Ethics Compliance Officer
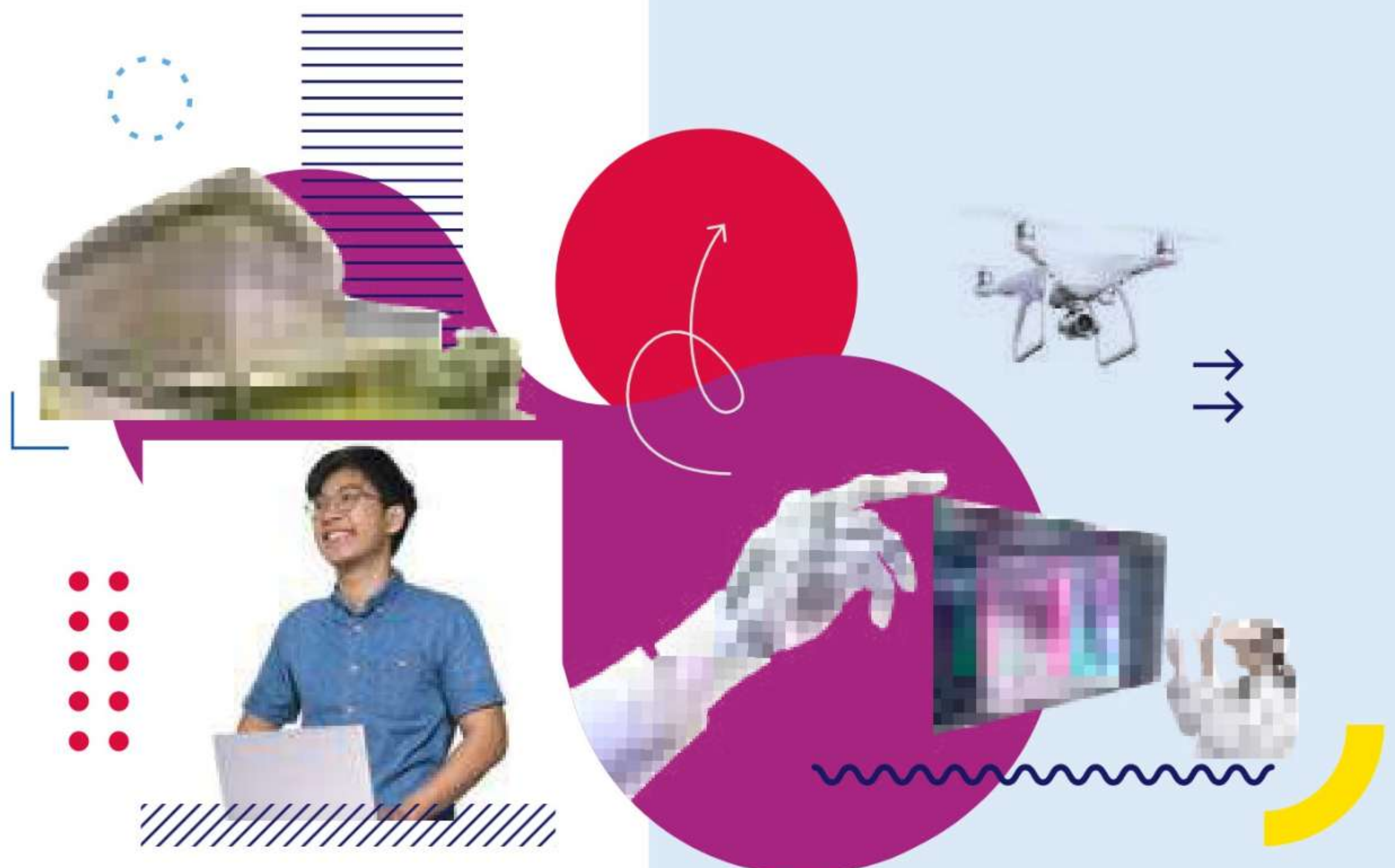
Admissions

Ready to make an impact?

NTU welcomes students who embrace transformation to adapt to the changing landscape of AI's impact on our future but also aspire to actively contribute to shaping it.

Admission requirements

Prospective students can apply to the BSc (Hons) in AI and Society programme through the A-level, International Baccalaureate (IB), or polytechnic routes.

The selection process will be merit-based, and the minimum requirement for admission is outlined in the table as shown.

Take the next step and apply today!

Hurry! Reach out to our admissions team @:

www.ntu.edu.sg/admissions/undergraduate/contact-us

BComp (Hons) in AI and Society

SELECTION TIMELINE

NTU will evaluate applications as they are received at point of admission.

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SELECTION CRITERIA

A-level:
H2 Level pass in Mathematics or Physics or Computing

International Baccalaureate (IB):
Pass in HL Mathematics or Physics or Computer Science at Higher Level

NUS Hight School Diploma:
Major CAP of 2.0 in Mathematics or in Physics

International & Other Qualification
Pass in Senior High School Lavel Mathematics or Physics

Diploma Holders:
Above C6 in O-level Additional Mathematics and good grades for at least two Mathematics courses in polytechnic.

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