



NUS
National University
of Singapore



Transform
industries with
**Artificial
Intelligence**

Master of Technology in
Artificial Intelligence Systems

Available as Stackable Graduate Certificate Programme in Artificial Intelligence

Master of Technology in **Artificial Intelligence Systems**

The NUS Master of Technology in Artificial Intelligence Systems (MTech AIS) (formerly known as MTech in Intelligent Systems) is a practice-based programme tailored for professionals seeking to design and develop systems that leverage Artificial Intelligence and cutting-edge technologies. This versatile programme covers a wide range of applications, including enterprise LLMs, chatbots, robotics, autonomous vehicles, intelligent sensing systems, the Internet of Things, Smart City projects, Industry 4.0, all the while ensuring business impact through AI system delivery.

Focusing on the core concepts, techniques, and methods of Artificial Intelligence (including Generative AI where applicable), the MTech AIS programme teaches you how to apply these principles to create sophisticated Artificial Intelligence Systems. You will gain both the theoretical knowledge and practical skills necessary to excel as an AI Systems specialist. Additionally, the programme prepares you to lead the development of AI Systems, enabling you to deliver effective and innovative business solutions for your organisation.

Recognition

- Best student is awarded the SPH Medal and Prize
- Best Project Award
- A coveted Master's degree from the top university in Asia

Who Should Apply

- Software developers, business analysts, domain experts, scientists, and engineers who wish to be able to design and build systems that utilise Artificial Intelligence and other Smart Systems techniques.
- Professionals who are in, or looking to enter, the following careers:

Artificial Intelligence Specialist

Text Mining/Analytics Specialist

Machine Learning Specialist

Autonomous Vehicle Systems Developers

Intelligent Systems Specialist

Vision and Sensing Systems Developers

Robotic Systems Developers

A.I. Business System Developers

Big Data Developers

Language Systems Engineers

Smart City Applications Developers

Grants & Subsidy

The NUS-ISS MTech Study Award will be given to qualifying Singapore Citizens and Singapore Permanent Residents matriculated from AY2023 / 2024 Semester 2 onwards for the unfunded courses of MTech EBAC, MTech AIS and MTech SE degrees.

The quantum for the Study Award will be (up to) S\$15,000 for Singapore Citizens and (up to) S\$7,500 for Singapore Permanent Residents, subject to terms & conditions.

NUS-ISS will also extend a 20% subsidy for NUS Alumni, including International students, and no other subsidy shall apply concurrently.

Admission Criteria

- Bachelor's degree preferably in Science or Engineering and a grade point average of at least B.
- Demonstrate proficiency in the English Language (written and spoken).
- An acceptable GRE score (overseas applicants) or pass NUS-ISS Entrance Test.
- A favourable assessment at admissions interview conducted by NUS-ISS.
- Preferably two years of relevant working experience.
- The NUS-ISS Entrance Test or GRE and interview requirements will be waived for applicants with relevant Bachelor's degrees from NUS, NTU, SMU and SUTD with Second Upper or above Honours.
- NUS-ISS Graduate Diploma in Systems Analysis alumni who wish to apply to NUS-ISS Master of Technology programmes may be waived of Entrance Test / GRE and interview requirement if they meet the GPA's requirements.
- Admission is on a competitive basis; eligible students will be offered admissions on a first-come first-served basis.

WORK EXPERIENCE

- As an IT professional, such as software developer, business analyst, or as a domain expert, working in an area where Intelligent Systems and Artificial Intelligence can be applied.
- Candidates with highly relevant IT degrees, with consistently good academic records and good practical software development knowledge gained either through course work, course projects or professional IT certifications, may be granted a work experience waiver.

ENGLISH LANGUAGE PROFICIENCY

- Applicants who graduated from universities where English is not the medium of instruction is required to submit TOEFL (Test of English as a Foreign Language) or IELTS (International English Language Testing System) score as evidence of their proficiency in the English language.

TOEFL	IELTS
<ul style="list-style-type: none"> Paper-based test (580) Computer-based test (237) 	Result of 6.0

- Institution code of NUS-ISS for TOEFL is 2432.
- TOEFL and IELTS are only valid for two (2) years and five (5) years respectively after the test and the validity should not expire before the beginning of the application period for the coursework programme.

GRE/NUS-ISS ENTRANCE TEST

- Applicants residing in Singapore will be required to pass an Entrance Test administered face-to-face in NUS-ISS.

Local applicants may opt to submit GREs instead of taking the Entrance Test in which case the same conditions apply as above

GRE/NUS-ISS ENTRANCE TEST

- International applicants residing overseas are required to submit GRE as evidence to demonstrate their academic capability:

A minimum GRE score of **320** (verbal & quantitative) and **3.5** (analytical) is recommended, within 5 years validity. (GRE institution code: 0677)

Applicants who have significant work experience relevant to their intended area of study may be considered for admission even if they do not meet the recommended GRE scores on a case-by-case basis. Please note that school projects, internships and enrichment programmes do not count as work experience.

How to Apply

All applicants are required to apply online via the Graduate Admission System (Coursework). Find out more about the MTech programmes at our info sessions.

Visit www.iss.nus.edu.sg/graduate-programmes for more details. We conduct in-country entrance tests and interviews in selected countries.



MTech AIS students must successfully complete **2 mandatory Fundamental Graduate Certificates**, **2 of 5 Specialist Graduate Certificates** as well as complete an Internship Project (Full-time students) / Capstone Project (Part-time students). Students are evaluated through a combination of course work, project work and examinations.

Programme Schedule

	Semester 1		Semester 2	
Full-time (1 year)	Intelligent Reasoning Systems	Pattern Recognition Systems	Intelligent Sensing Systems	Practical Language Processing
			Intelligent Software Agents	Intelligent Robotic Systems
				Intelligent Financial Risk Management
	Internship Project (5 months)			
	Semester 1	Semester 2	Semester 3	Semester 4
Part-time (2 years)	Intelligent Reasoning Systems	Pattern Recognition Systems	Intelligent Sensing Systems	Practical Language Processing
			Intelligent Software Agents	Intelligent Robotic Systems
				Intelligent Financial Risk Management
	Capstone Project (7 – 12 months)			

Practice Module

All MTech students are required to complete a Practice Module to attain a Graduate Certificate. This module aims to expose participants to real world problems and enable them to demonstrate their proficiency across all skills that they have learned in the course modules.

Stackable Graduate Certificate Programme in Artificial Intelligence

The Stackable Graduate Certificate Programme in Artificial Intelligence also leads to the Master of Technology in Artificial Intelligence Systems. This stackable pathway allows Professionals, Managers, and Executives (PMEs) to build up to the MTech degree through attaining a series of NUS-ISS graduate certificates followed by a capstone project. The pathway allows five years to attain the required graduate certificates and two years to complete the capstone, though most stackable participants will finish faster. They have the flexibility to study at their own pace by selecting modular courses that comprise the graduate certificates to meet their individual needs. PMEs who opt not to pursue the graduate certificate, diploma, or degree can continue attending individual modular courses, enabling them to acquire the skills required to enhance their career prospects.

Visit www.iss.nus.edu.sg/stackable-programmes to find out more.



Fundamental Graduate Certificates

GRADUATE CERTIFICATE IN INTELLIGENT REASONING SYSTEMS

Machine Reasoning

Reasoning Systems

Cognitive Systems

Practice Module

Learning Outcomes

- Acquire the skills needed to be part of a team building intelligent systems capable of problem solving across varied business and scientific / engineering domains.

Job Roles

- AI & Optimisation Solution Consultant; AI Developer; Solution Engineer
- Cognitive Automation Expert
- Chatbot Developer; Research Engineer (Graph Computing and Logical Reasoning)

GRADUATE CERTIFICATE IN PATTERN RECOGNITION SYSTEMS

Problem Solving using Pattern Recognition

Pattern Recognition and Machine Learning Systems

Intelligent Sensing and Sense Making

Practice Module

Learning Outcomes

- Acquire the skills needed to develop pattern recognition systems utilising the latest machine learning and sensor signal processing techniques.

Job Roles

- Machine Learning Engineer / Developer
- AI Scientist / Engineer
- Data Scientist / Machine Learning & Deep Learning Engineer

Specialist Graduate Certificates

GRADUATE CERTIFICATE IN INTELLIGENT SENSING SYSTEMS

Vision Systems

Spatial Reasoning from Sensor Data

Real Time Audio-Visual Sensing and Sense Making

Practice Module

Learning Outcomes

- Acquire the skills needed to build intelligent systems that can reason and make decisions based on visual, audio, and speech inputs. Examples include crowd monitoring, facial recognition, medical sensing, robot and vehicle control.

Job Roles

- Computer Vision Scientist / Engineer
- Machine Learning Engineer (Computer Vision, Deep Learning)
- AI Application Engineer (Audio / Video Analytics), Data Scientist (Computer Vision, Image Analytics)

GRADUATE CERTIFICATE IN PRACTICAL LANGUAGE PROCESSING

Text Analytics

New Media and Sentiment Mining

Text Processing using Machine Learning

Conversational UIs

Practice Module

Learning Outcomes

- Acquire advanced skills in practical language processing and learn to apply classical as well as deep learning techniques in text data analytics, sentiment mining, and chatbot applications.

Job Roles

- Data Scientist
- NLP Engineer / Specialist / Scientist
- AI Solution Engineer, Machine Learning Engineer
- Chatbot Developer

GRADUATE CERTIFICATE IN INTELLIGENT SOFTWARE AGENTS

Intelligent Process Automation

Software Robots – Best Practices

RPA and IPA – Strategy and Management

Self-Learning Systems

Practice Module

Learning Outcomes

- Acquire the skills necessary to build intelligent software agents that can act on behalf of humans in commercial and business transactions, as well as automate business processes.

Job Roles

- RPA Engineer / Developer
- System Engineer (Machine Learning / RPA / Automation)
- Data Engineer

GRADUATE CERTIFICATE IN INTELLIGENT ROBOTIC SYSTEMS

Robotic Systems

Autonomous Robots & Vehicles

Human-Robot System Engineering

Practice Module

Learning Outcomes

- Acquire the skills needed to build advanced robotics and automation systems required for Industry 4.0. These include designing co-operative robot systems and developing mobile and autonomous systems.

Job Roles

- Robotics / Automation Engineer
- Robotics Project Manager
- Autonomous Vehicle Engineer

GRADUATE CERTIFICATE IN INTELLIGENT FINANCIAL RISK MANAGEMENT

Advanced Machine Learning for Financial Services

Explainable & Responsible AI for Finance

Credit Risk Modelling and Analytics

Alternative Data for FinTech Innovation

Practice Module

Learning Outcomes

- Ability to extract knowledge for decision making from financial data.
- Able to augment customer information using alternative data sources to complement decision making for financial services.

Job Roles

- Data Analyst / Scientist
- AI Scientist / Specialist
- Financial Analyst / Investment Analyst / Risk Analyst

INTERNSHIP/CAPSTONE PROJECT

Student projects for MTech AIS students include 5 months with companies for full-time students. For part-time students, the capstone project will be for 7 – 12 months. The expected commitment for the project is 30 man days per student.

Learning Outcomes

- Conduct requirement analysis using a structured approach.
- Produce high quality AI systems following industry best practices and methodologies.
- Proficient in the use of AI tools and techniques to deliver optimal business value.

“ MTEch IS focuses on learning and developing state-of-the-art AI algorithms and emphasises heavily on practical application, creating end-to-end solutions for customers.

Pamela Lin

*Senior Staff Engineer (Advanced Data Analytics)
Infineon Technologies*

“ The MTEch IS programme covers a wide variety of technologies and techniques, and provides a comprehensive understanding of big data, data warehousing, processes and database design – skills that are essential to any data professional.

Tan Ren Jie

*Senior Data Scientist
Kredivo Group*

“ The MTEch IS programme blends theoretical knowledge with practical applications, ensuring students gain a comprehensive understanding and develop essential skills for real-world implementation.

Prashant Chaudhary

*Vice President
Bank of America*

Other Graduate Programmes

Master of Technology in Software Engineering

Available as
Stackable Graduate Certificate Programme in Smart Systems & Platforms

Master of Technology in Digital Leadership

Available as
Professional Certificate Programme in Digital Leadership

Master of Technology in Enterprise Business Analytics

Available as
Stackable Graduate Certificate Programme in Data Science

Graduate Diploma in Systems Analysis

Available as
Stackable Graduate Certificate Programme in Digital Solutions Development

About NUS-ISS

Established in 1981, NUS-ISS nurtures digital talent for the industry through graduate education, executive education programmes, consultancy, applied research, and career services. NUS-ISS guides individuals and organisations to bridge future opportunities through a unique portfolio of multiple learning pathways such as blended learning and stackable programmes, leading the way in shaping the next curve of digital excellence. It offers a wide spectrum of programmes in critical industry disciplines, such as digital leadership, software development, data science, artificial intelligence, cybersecurity, product management, smart health and digital innovation.

To date, over 178,000 digital leaders and professionals, 8,410 corporate client organisations, and 8,160 graduate programmes alumni have benefitted from NUS-ISS's suite of services. Its programmes are delivered by NUS-ISS staff with an average of more than 20 years of industry experience and supported by a strong network of partners. NUS-ISS also works with industry partners and associations locally and globally to co-create a digital learning ecosystem that inspires and shapes solutions for the digital economy.

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