

TEMASEK DEFENCE SYSTEMS INSTITUTE

**Advance with Confidence,
Defend with Excellence.**



Fortifying Knowledge Empowering Defence

Temasek Defence Systems Institute (TDSI) was established on 11 July 2001 between the National University of Singapore (NUS) and the U.S. Naval Postgraduate School (NPS) to create a collaborative academic platform that brings together military professionals and defence technologists.

As an academic institute of NUS, one of the world's top-ranked universities in Asia, TDSI advances education in defence systems. TDSI's flagship programme, the Master of Defence Technology and Systems (MDTS), a dual master's degree awarded by NUS and NPS, launched on 10 July 2002.

Expanding on this foundation, NUS and NPS have launched the Joint Master's Degree in Defence Systems Engineering and Technology (MDSET), on 23 July 2025, a programme tailored to address today's complex and rapidly evolving technological landscape.

Vision

A premier educational institute for nurturing systems thinkers and thought-leadership in systems thinking in defence and security.

Mission

To nurture system thinkers and leaders to advance Singapore's defence capabilities.

DARE TO DREAM DO DELIVER

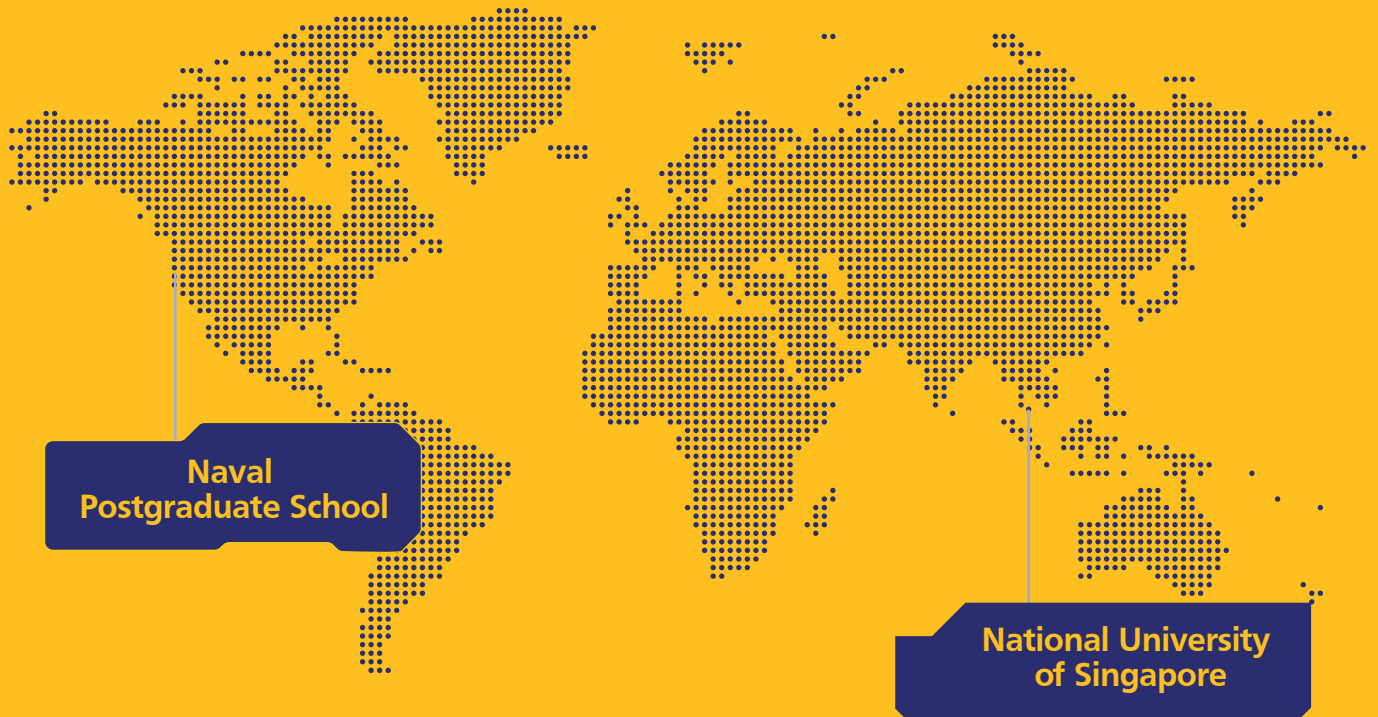


Masters Programme

- Joint Master of Science in Defence Systems Engineering and Technology with Naval Postgraduate School

Continuing Education

- Short Courses
- Stackable Programmes
- Technology Seminar Series
- Annual Learning Symposium



TDSI

Master's Degree Education

Your Gateway to the World

What are the 4Cs you should examine in a Master's Programme?



Curriculum

The coursework in Singapore for the first six months of the programme is structured to help you develop a helicopter vision of real-life situations. Besides learning from experienced professors, you also get to learn first-hand from industry experts who have implemented and managed large-scale systems.

For the next 12 months, you will head to your chosen university to complete studies focused on more operational and technical subject matter. You will deepen your knowledge base by taking courses in your chosen specialization and get an opportunity to work with world-class faculty on actual military and defence problems.

The ability to assess the big picture with an overarching view of military systems, combined with your superior domain knowledge, will equip you to design and develop solutions that are holistic and optimal.



Classroom

We conduct lessons in a small-class size that is conducive to learning. We encourage you to stay well-informed by engaging in meaningful dialogues with your classmates. You will be challenged to present your arguments in a clear and concise manner and to provide well thought-out and well-integrated solutions in your numerous projects.

We create a stimulating learning environment that brings out the best in you so that you emerge as a well-rounded individual capable of leading and thriving in the fast-changing world.



Cross Boundary

TDSI combines the best resources of NUS and our renowned overseas partner universities to produce graduates who are well-equipped to deal with the challenges confronting the 21st-century defence force. You will learn first-hand from defence and industry experts who have implemented and managed complex large-scale systems.

Our lecturers will inculcate in you valuable multidisciplinary knowledge and skillsets, generously share with you case studies, their cross-boundary perspectives, and real-life experiences so that you can devise and implement system-based solutions to tackle complex challenges at your workplace. Through the programme, you will get the best of both a premium military technology education and an international networking experience to build camaraderie with fellow course mates.



Cross Disciplinary

The curriculum focuses on inculcating systems thinking in you and helps you develop critical skills to integrate operations and technologies at the systems level. You will gain a helicopter view of military systems and be equipped with the know-how on emerging technologies and their applications in military operations.

You will have the opportunity to experiment in an environment that induces multidisciplinary interactions encountered in the real world. You will work in a multi-disciplinary team and embark on hands-on learning through collaborative projects coached by leading military technologists and experts in systems engineering. All students will learn to think critically beyond technology to include strategies, processes, and organization towards a formidable defence force.

Joint Master of Science in Defence Systems Engineering & Technology with Naval Postgraduate School

Programme Overview

This 18-month Joint Master of Science in Defence Systems Engineering and Technology, delivered in partnership with the Naval Postgraduate School (NPS), empowers professionals with advanced systems engineering expertise tailored for the modern era. Built on TDSI's world-class foundation, the curriculum blends rigorous in-depth technical training with flexible electives in digitalization and the strategic use of AI. With a focus on applied, practice-oriented learning and international leadership, this programme prepares you to navigate and lead within today's complex, data-driven, and technology-intensive operational environments.

Study Location

Students study at NUS before pursuing their specialization in NPS. NPS is highly regarded for their specialized focus on military research and education.

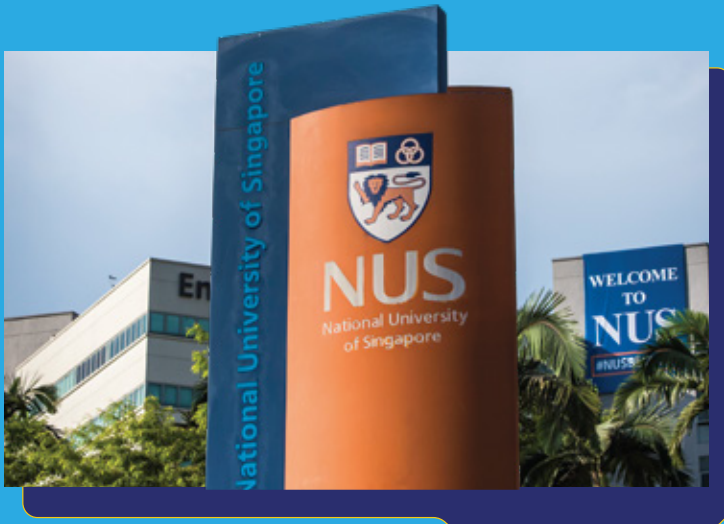
Key Takeaways

Students achieve an exceptional level of expertise systems engineering, complemented by the unique flexibility to personalize their degree through a wide range of cross-disciplinary electives. Whether focusing on Digitalisation and the Strategic Use of AI, Combat Systems, Space Technologies, Cybersecurity, or Electrical and Mechanical Engineering, the curriculum is designed to be as adaptable and dynamic as today's multifaceted operational environments. The core courses and technical tracks are seamlessly integrated to bridge the gap between engineering theory and operational reality, sharpening a graduate's ability to assess risk, ensure system resilience, and navigate complex capability trade-offs. Ultimately, the programme prepares leaders to drive technology development and manage multidisciplinary teams in an evolving geopolitical landscape, culminating in the prestigious Joint Master of Science in Defence Systems Engineering and Technology.

Joint Degree Timeline

18 MONTH

JOINT MSc IN DEFENCE SYSTEMS ENGINEERING AND TECHNOLOGY



1st 6 months in NUS

QUARTER 1

March to May

QUARTER 2

June to August

Next 12 months at NPS

QUARTER 3

September to December

QUARTER 4

January to March

QUARTER 5

April to June

QUARTER 6

July to September



Joint Master of Science in Defence Systems Engineering & Technology with Naval Postgraduate School

Who Should Apply

TDSI looks for the following qualities in potential students:

Academic excellence.
Tenacity to break barriers.
Courage to embrace challenges.

We are looking for dreamers and doers with the following qualifications:

- 1 A Bachelor of Engineering degree (with good honours), Bachelor of Science in Physics or Mathematics degree (with good honours) or an equivalent qualification acceptable to NUS and NPS
- 2 At least 3 years of relevant working experience; and
- 3 Full sponsorship by the candidate's employer

Partner University Phase

Naval Postgraduate School

1. Artificial Intelligence
2. Cybersecurity
3. Electrical and Computer Engineering
4. Information Sciences
5. Mechanical Engineering (Autonomous Systems)
6. Modelling and Simulations
7. Network Science
8. Operations Research
9. Scientific Computing
10. Secure Communications
11. Space Systems
12. Systems Engineering (Combat)



MS REGINE OH
HEAD, CAPABILITY DEVELOPMENT
(ELECTRONIC SYSTEMS)
DEFENCE SCIENCE AND
TECHNOLOGY AGENCY
MDTS2006

Hear what our graduates have to say about our programme

The technical knowledge and overarching view of military systems I have acquired from the MDTS programme is applicable to my work. The programme has made me more observant and able to think more critically about not just technology but also processes, organization, and strategies for a more effective defence force. I was also able to draw on the different skill sets of my classmates, who were from the defence community, to complement my own research.



BG(NS) ADRIAN TENG
SINGAPORE ARMED FORCES
MDTS2006

Attending the Temasek Defence Systems Institute (TDSI) in 2006 as a junior officer was a pivotal milestone that shaped the trajectory of my career. Over the past two decades in the Singapore Armed Forces (SAF), the returns on that investment have been immeasurable.

TDSI's hallmark systems-thinking approach fundamentally shifted how I view complex operations. Instead of looking at problems in isolation, I learned to analyze the defense ecosystem as a whole. This rigorous, structured methodology gave me the tools to systematically deconstruct and solve intricate challenges at every command and staff level throughout my career.

Equally valuable was the unique networking environment. TDSI bridges the gap between operators, defense scientists, and industry experts. The relationships I forged there with professionals across the wider defense ecosystem became a trusted network that I relied upon for collaboration and insights over the next twenty years.

To the junior officers of today: the defense landscape is evolving faster than ever, and standard paradigms are no longer enough. I highly recommend joining TDSI. It is not just an academic course; it is an integral professional development milestone that will equip you with the mental frameworks and the network needed to lead, innovate, and solve the complex challenges of tomorrow's SAF.



MR WILLIAM GOH
VICE PRESIDENT,
HEAD INTERNATIONAL BUSINESS,
DIGITAL SYSTEMS,
ST ENGINEERING
MDTS2014

MDTS offers a wide range of modules such as C3, large scale systems, radar systems, and operation support. Each module comes with individual and team project assignments. Through these assignments, I was able to grasp key Tech & Ops concepts and collaborate with classmates with diverse backgrounds. The knowledge and abilities I acquired have helped me greatly in implementing and collaborating on large turnkey projects. The opportunity to work with foreign military on the capstone project in NPS trained me to think critically and independently, formulate solutions, and give presentations to senior leadership. This exposure has helped me to take on challenges and present innovative ideas clearly to various stakeholders in my subsequent appointments.



ME6 SU JUNCUN
HEAD AERO-STORE
CERTIFICATION BRANCH,
AERODYNAMICS CENTRE,
AIR ENGINEERING AND
LOGISTICS DEPARTMENT
SINGAPORE AIR FORCE
MDTS 2022

The MDTS programme offered by TDSI has been a transformative journey for me, bringing me out of my comfort zone and pushing me to learn beyond my expectations. The diverse curriculum, ranging from large-scale systems engineering to defence technologies, cybersecurity, and artificial intelligence, provided me with a broad and practical education in defence technology. One of the most outstanding features of the MDTS programme is the opportunity to collaborate with and learn from officers from across the globe, from different defence organisations and services, each bringing valuable perspectives and insights. This experience has given me lifelong friendships, new knowledge and insights to embrace new challenges, and an undying desire to learn.

Thank you, TDSI, for the opportunity and friendships!

TDSI Continuing Education



TDSI serves as the training arm in upskilling the dynamic defence workforce in Singapore with executive short courses, technology seminars, and the annual learning symposium. The full-time executive short courses aim to deepen domain-specific knowledge in defence systems and emerging technologies, as well as in systems and project management.

TDSI Technology Seminar Series provides a platform for domain experts to share trending technology topics with the defence community. The annual TDSI Learning Symposium invites thought leaders to provide insights to latest technological advancements and any global topics that may impact the evolving Singapore defence ecosystem.

Innovation in Defence Starts with Knowledge!

Short Courses

Short duration with high impact to tackle tomorrow's challenges

TDSI's continuing education short courses are designed to deliver immediate, practical value to defence organizations and their personnel. With focused courses spanning technology, strategy, and operations, the learning will equip course participants with relevant knowledge that can be applied directly to their daily work. Short in duration yet rich in content, each course is structured to enhance professional competencies where participants benefit from expert-led sessions, peer exchanges, and real-world case applications.



Technology Seminar Series

Empowering knowledge to create ideas

TDSI Technology Seminar Series provides a platform for the defence community to learn trending topics and technology innovations from domain experts, thereby enriching knowledge in systems and technology arena.

Annual Learning Symposium

Embrace innovation and transformation

TDSI Learning Symposium is an annual event that enables the defence community to learn from distinguished speakers who are thought leaders in their own technology domain. Together, they share their insights and perspectives on trending technology topics. The latest offerings of TDSI will also be announced or updated at the learning symposium.



Graduate Certificate Programmes

Graduate Certificate in Digital Technologies

DTS5732 Artificial Intelligence & Data Analytics
DTS5735 Cybersecurity

*Choose one course from the elective courses list

Graduate Certificate in Systems Engineering

DTS5701 Large Scale Systems Engineering

DTS5703 Operations Research

*Choose one course from the elective courses list

*Elective Courses

DTS5701 Large Scale Systems Engineering

DTS5703 Operations Research

DTS5732 Artificial Intelligence & Data Analytics

DTS5733 Sensors & Intelligence

DTS5734 Guided Systems

DTS5735 Cybersecurity

EE5112 Human Robot Interaction

ME5311 Data-Driven Engineering and Machine Learning

ME5418 Machine Learning in Robotics

Executive Certificate Courses

DTS5701 Large Scale Systems Engineering

DTS5702 C3 Systems

DTS5703 Operations Research

DTS5732 Artificial Intelligence & Data Analytics

DTS5733 Sensors & Intelligence

DTS5734 Guided Systems

DTS5735 Cybersecurity

1

Add value to self

Be better than you were yesterday. Gain insights on how things are systematically categorized and related, and how to view things in its entirety. As you apply newly acquired skills and adopt best practices, you make consistently better business decisions that lead to productivity and improved results.

As you contribute to the greater good, by the privilege of the positions you are holding, the tough decisions that you will make, and the solutions that you will create, TDSI supports you by imparting vital skills to overcome everyday challenges with greater confidence and proficiency.

Are you adding new value?

2

Add value to customers

Innovative ideas can sometimes be obscured by extensive operational details and occupations with tools and processes. Step out, go beyond conventional premises and question routine approaches. Why are things done this way? What are the motivations for doing it this way? Are there any other ways?

Gain in-depth perceptions from practitioners on how to assess situations from different perspectives and to provide well-thought-out solutions for your customers.

3

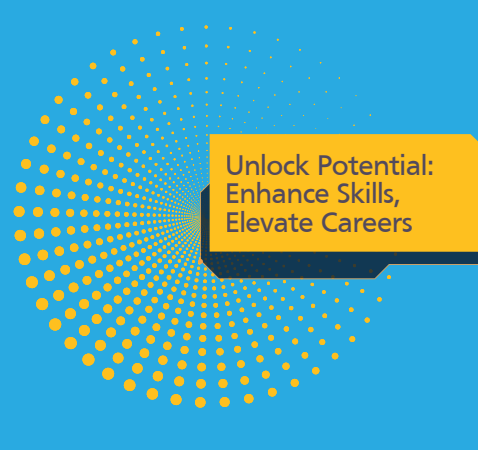
Add value to organisation

Increase productivity in all phases of project cycles by preventing ineffective habits that cause delay and frustrations. TDSI engages industry experts and invites you to find answers from them on how to mitigate risks, identify uncertainties and its effects early in the development cycle. As you eliminate rectification cost and prevent bottlenecks in projects, you deliver greater value with less waste and reduced time.

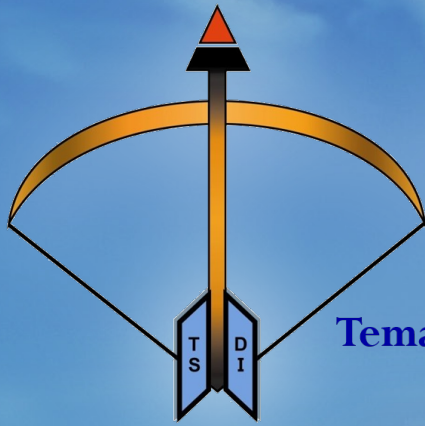
4

Add value to others

Expand your knowledge base by exchanging viewpoints and best practices with others. You can avoid some common pitfalls by learning from those who have travelled the paths. Be a mentor and pass on your knowledge to your colleagues and peers. Contribute by letting others benefit from your experiences, and in the process form new friendships and long-term business relationships.



Unlock Potential:
Enhance Skills,
Elevate Careers

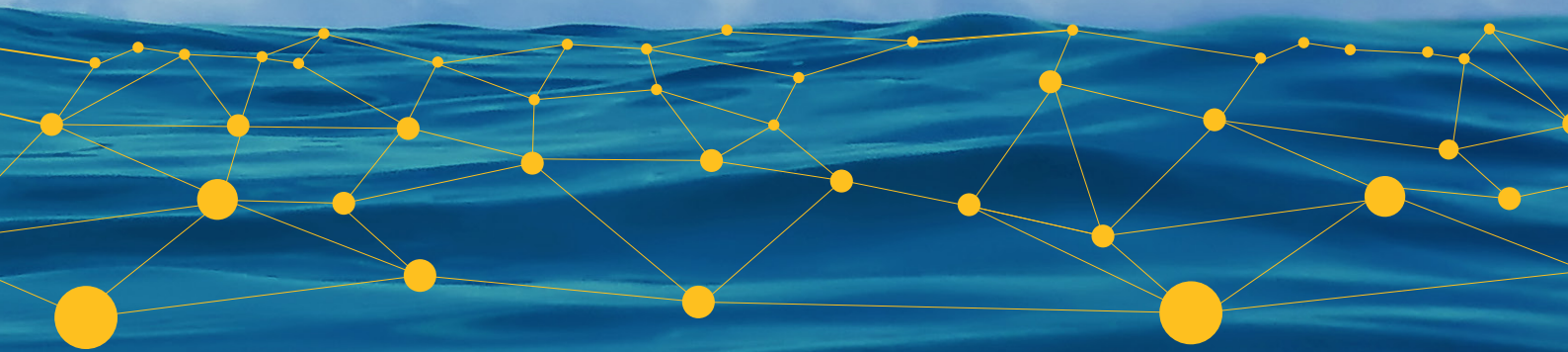


TDSI

Temasek Defence Systems Institute

YOUR JOURNEY BEGINS HERE

Embark on your learning journey with TDSI today!



Learn. Innovate. Advance.
<https://tdsi.nus.edu.sg/>