

YDSP CONGRESS

25 APRIL 2025



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PROGRAMME FOR YDSP CONGRESS 2025

TIME	EVENT
3:00 pm	<p>Keynote Address by Guest-of-Honour Mr Heng Chee How Senior Minister of State for Defence</p> <p>Presentation of YDSP Scholarships and DSTA Junior College Scholarships by Guest-of-Honour</p> <p>Project Presentation by Participants of YDSP Activities</p> <p>Tea Reception cum Exhibition of Projects by Participants of YDSP Activities</p>
5:00 pm	End

At a Glance - YDSP Activities 2024

YDSP SCIENCE AND TECHNOLOGY CAMP 3 June to 7 June 2024

Artificial Intelligence - Robotics

Over the course of a five-day camp, 95 students from 19 schools delved into various aspects of Artificial Intelligence in Robotics. The camp offered insights and practical applications of technologies. It concluded with team-based project presentations and a competitive Team Challenge, where groups showcased their innovative solutions.

YDSP SCIENCE AND TECHNOLOGY CAMP 25 November to 29 November 2024

Space Exploration

During the five-day camp, 94 students from 19 schools took on the role of space engineers, learning about space exploration and the technologies involved. The participants built a rover prototype, learnt to code, and controlled it using Python. The camp also highlighted the significance of space exploration and the efforts to drive progress in this field. The camp wrapped up with project presentations and a Rover Mission Competition, where participants teamed up in alliances to showcase their creations.



YDSP WORLD OF SCIENCE

27 May to 21 June 2024

Students experienced the exciting world of defence R&D through lectures, lab visits and hands-on activities over eight modules ranging from physical sciences to infocomm technologies critical to Singapore's defence and national security.

Aerodynamics Module

24 students had the opportunity to uncover the secrets behind flying machines at this five-day workshop, where they learnt from experts, tried their hands at flying using a flight simulation software, and built their own gliders!

Artificial Intelligence Module

Held over four fun-filled days at DSO, 21 students explored and learnt about the latest trends in Artificial Intelligence (AI) such as Natural Language Processing and Computer Vision, and its applications in defence. Participants put their skills to the test with an Intelligent Game AI Agent Sandbox developed by DSO, which culminated in a mini-competition where students' AI agents battled it out in a virtual environment.

Cryptography Module

27 Mathematics enthusiasts were introduced to the intricate work of Mathematics in modern Cryptography, with lectures designed to deepen their understanding of advanced concepts in this field. A series of challenging problems was also designed to excite and inspire the students through the revelation of mathematical applications in the area of security research.

Computer Security Module

23 students had the opportunity to find out what it is like to be a Cybersecurity Researcher in this four-day workshop. From testing of web applications for vulnerabilities to uncovering a PIN code, this module exposed students to the various aspects of computer security.

Electromagnetics Module

Over three days, 25 students learnt various electromagnetic (EM) applications through a series of exciting demonstrations and hands-on activities, such as building their own antennas and electromagnetic coil launchers! To reinforce EM to the real world, they visited the advanced EM test and measurement facilities within Temasek Laboratories at the National University of Singapore (NUS).

Robotics Module

Held across five days, 24 students gained hands-on experience in robotics such as 3D printing and the Robotic Operating System (ROS), and learnt the basics of electronics design, sensors integration and programming. They got the chance to build their own robots and compete against each other!

Sensors, Reducing the Fog of War Module

In this five-day module, 24 students explored various sensing technologies crucial to defence such as sonar, radar, and digital image processing, and experienced real-time sense-making and decision-making. At the end of the module, they applied their newly acquired knowledge of sensors in a multi-player war game.

Quantum Technology Module

20 students gained insights as to how quantum technologies could change their lives in the coming decades. In the five-day workshop, they experienced a series of hands-on experiments to investigate interferometry and superconductivity, lab tours around DSO's quantum laboratories, and visits to National University of Singapore and Nanyang Technological University.

Research@YDSP

March/July/September to December 2024

82 students participated in Research@YDSP, a four to nine months project attachment which offers students an opportunity to work on defence-related projects, under the mentorship of engineers and scientists from DSTA and DSO. Students focused on diverse topics including aerodynamics, cybersecurity, artificial intelligence, machine learning, robotics, unmanned systems and many more.

YDSP SCHOLARSHIP

The YDSP Scholarship is awarded to Secondary 3 and equivalent students who have a passion for science and technology.



YDSP SCHOLARSHIP RECIPIENTS

Name	School
Bryan Sim Yong Rui	Anglo-Chinese School (Independent)
Loo Enxin Timothy	Anglo-Chinese School (Independent)
Clara Tan Hui Xuan	Cedar Girls' Secondary School
Carys Lim Shi Ying	CHIJ St Nicholas Girls' School
Chan Lok Ngan, Miriam	CHIJ St Nicholas Girls' School
Lim Kang Yu	Catholic High School
Chris James Sengol	Catholic High School
Tian Zhao Rui Ayden	Dunman High School
Lee Li Kee	Dunman High School
Gao Yuxiang Lucas	Hwa Chong Institution
Wan Zhi Kai	Hwa Chong Institution
Megan Yow Kai Si	Methodist Girls' School
Lin Pinyi Rachel	Methodist Girls' School
Liang Jingyi	Nanyang Girls' High School
Kwan Hui Xin Celeste	Nanyang Girls' High School
Lebron Soh Zhen Teng	National Junior College
Sin Yew Wai Aidan	NUS High School of Mathematics and Science
Gayatri Sujit	NUS High School of Mathematics and Science
Chow Yu Yao	NUS High School of Mathematics and Science

YDSP SCHOLARSHIP RECIPIENTS

Name	School
Cheah Kai Ru Kendra	Raffles Girls' School
Zhang Jinghan	Raffles Girls' School
Brian Xiao Boyang	Raffles Institution
Ong Jun Fong Jayden	Raffles Institution
Ang Hui Ru	River Valley High School
Woo Zit On, Jayven	River Valley High School
Tan Shi Ying, Charlotte	Singapore Chinese Girls' School
Chiu Chi Ying Ella	Singapore Chinese Girls' School
Yee Wei Cai Kieran	St. Joseph's Institution
Gautam Amol Dabholkar	Temasek Junior College
Jaan How Wenhan	Victoria School

DSTA JUNIOR COLLEGE SCHOLARSHIP

The DSTA Junior College Scholarship is awarded to first-year junior college and equivalent students who have achieved all-round excellence and a passion for science and technology.



DSTA JUNIOR COLLEGE SCHOLARSHIP RECIPIENTS

Name	School
Emmanuel Soon Yi En	Anglo-Chinese School (Independent)
Ken Yokota Soh	Anglo-Chinese School (Independent)
Lee Lin Chong, Nigel	Anglo-Chinese School (Independent)
Reyes Lee Yui Hou	Anglo-Chinese School (Independent)
Tan Jun Xian Clement	Dunman High School
Teo Tiat Siak, Justin (Zhang Zhexi)	Dunman High School
Ang Wei Sheng, Wilson (Hong Weisheng)	Eunoia Junior College
Chan Si Yun	Eunoia Junior College
Jovi Tay (Zheng Ruiying)	Eunoia Junior College
Lim Hong En	Eunoia Junior College
Chen Haowei	Hwa Chong Institution
Chew Zhi Xuan, Erin	Hwa Chong Institution
Lim Hao Ming	Hwa Chong Institution
Ng Yu Heng	Hwa Chong Institution
Poon Jin Feng	Hwa Chong Institution
Sophie Tung Xuan Ying	Hwa Chong Institution
Sun Zizhuo	Hwa Chong Institution
Tan Ser Kai Nathaniel	Hwa Chong Institution
Yap Hao Ming Darren	Hwa Chong Institution

DSTA JUNIOR COLLEGE SCHOLARSHIP RECIPIENTS

Name	School
Francis Ang Zhao Xiong	Nanyang Junior College
Advik Sridhar	NUS High School of Mathematics and Science
Hong Huan Rong	NUS High School of Mathematics and Science
Jaden Tjeng	NUS High School of Mathematics and Science
Parakram Mohan	NUS High School of Mathematics and Science
Gwen Lim Yixuan	Raffles Institution
Raphael Lim Fu En	Raffles Institution
Wang Enrun Matthias	Raffles Institution
Zachary Choy Kit Chun (Cai Jiejun)	Raffles Institution
Cheng Yok Yong (Zeng Yurong)	River Valley High School
Chava Vishruth	St. Joseph's Institution
Guo Yatian	Temasek Junior College
Lim Xin Yu Niko	Victoria Junior College
Linus Lim Jiarui	Victoria Junior College
Megan Wong Jia Yu	Victoria Junior College
Vilashini Hariram	Victoria Junior College

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We would like to thank the following schools for their support of YDSP and the DSTA Junior College Scholarship:

Anglo-Chinese School (Independent)

Catholic High School

Cedar Girls' Secondary School

CHIJ St Nicholas Girls' School

Dunman High School

Eunoia Junior College

Hwa Chong Institution

Methodist Girls' School

Nanyang Girls' High School

Nanyang Junior College

National Junior College

NUS High School of Mathematics and Science

Raffles Girls' School

Raffles Institution

River Valley High School

Singapore Chinese Girls' School

St. Joseph's Institution

Temasek Junior College

Victoria Junior College

Victoria School



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