CN Yang Scholars Programme
Curiosity is probably the most conspicuous characteristic of an intellect. Great scientists and engineers ask unprecedented questions and break boundaries, all due to this insatiable passion. However, this alone is sometimes insufficient. Great scientists and engineers are also doers; dexterity is often required to make things happen. With both curiosity and dexterity, unlimited potential and possibilities will be released.

We have a unique interdisciplinary curriculum that allows our scholars to be well trained in broad range of sciences. Our scholars are then exposed to vast opportunities to learn and apply their knowledge to practical problems. They are encouraged to think creatively and express their ideas individually and as a team. We give every scholar limitless opportunities for personal growth, enriching and molding them into intellectuals. Our scholars will have the chance to work on cutting edge research projects in different fields, as well as meeting some of the greatest scientists and engineers alive. As iron sharpens iron, interactions with world-class scientists and engineers will burnish their ideas and intellectual capabilities.

Since 2006, our doors have been opened to the brightest of minds that are passionate about science and engineering. We want you! I hope you may be part of our company of stars and illustrious alumni.

Assoc Prof Tan Choon Hong
Director of CN Yang Scholars Programme

"We have a unique interdisciplinary curriculum that allows our scholars to be well trained in broad range of sciences."
Programme Highlights

Scholarship Award
• NTU offers a variety of scholarships to students in recognition of their academic excellence, leadership potential & strong passion

Interdisciplinary Curriculum
• Unique and interdisciplinary curriculum with broad range of sciences, mathematics and computing

Research Opportunities
• Research attachment at NTU institutes or industrial laboratories
• Overseas final year project at reputable universities
• Opportunity for PhD study (optional)

Residential Experience
• Guaranteed four years of stay in NTU halls of residence
• Multidisciplinary and group research at Garage

Global Exchange
• Opportunities to gain global experience in reputable overseas universities
• Guaranteed overseas exchange for one semester with travel grant of S$5,000

Meeting world class Nobel Laureates and Leaders
• Opportunities to meet world class Nobel Laureates and Leaders through various Eminent Speakers Series, seminars and workshops

Academic Guidance by CNYS alumni
• Every student will be assigned a mentor who will provide guidance for the student’s whole academic programme at NTU

Scholarship Award

Nanyang Scholarship
The Nanyang Scholarship will be awarded to successful applicants.

Benefits include:
• Subsidised tuition fees (after tuition grant)
• Living allowance of S$6,000 per annum
• Travel grant of S$5,000 for overseas study/exchange programme (one-off)
• Accommodation allowance up to $2,000 per annum (for scholars who reside in NTU halls only)
• Settling-in allowance of S$250 (one-off)
• Computer allowance of S$1,500 (one-off)
• Book allowance of S$500 per annum

✓ No bond is attached to the Nanyang Scholarship apart from the 3-year bond applicable to all Singapore PRs and international students under the MOE Tuition Grant Scheme
✓ Recipients of other scholarships are eligible to apply for the CN Yang Scholars Programme
✓ CN Yang Scholars are required to maintain a satisfactory CGPA (Cumulative Grade Point Average) of 3.5 over 5.0. Academic performance is monitored on a semester basis
Courses eligible under the CN Yang Scholars Programme

**Engineering**
- Aerospace Engineering
- Bioengineering
- Chemical & Biomolecular Engineering
- Civil Engineering
- Computer Engineering
- Computer Science
- Electrical & Electronic Engineering
- Environmental Engineering
- Materials Engineering
- Mechanical Engineering

**Science**
- Biological Sciences
- Chemistry & Biological Chemistry
- Environmental Earth Systems Science
- Mathematical Sciences
- Physics & Applied Physics

**Curriculum Structure**

**Biology**
- Introductory Biology

**Chemistry**
- Principles of Modern Chemistry

**Mathematics**
- Mathematics I
- Mathematics II

**Physics**
- Physics
- Relativity and Quantum Physics

**Computing**
- Algorithms and Computing I (for Science)
- Computing (for Engineering)

**Earth Science**
- Climate Science: Multi-Disciplinary Perspectives

**Business, Liberal Arts and Social Sciences**
- Ethics
- Writing and Reasoning
- Enterprise, Innovation and Leadership

**Research/Lab:**
- Introductory Research Methodology
- CNYSU Undergraduate Research Experience
- Research Attachment
- Overseas Final Year Project
### Curriculum Overview for Science (138 AUs)

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<th>Year, Sem</th>
<th>Comments</th>
<th>Courses</th>
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<tr>
<td>Year 1, Sem 1</td>
<td>Overseas Trip (Educational)</td>
<td>Introductory Biology (3 AU)</td>
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<tr>
<td>Year 2, Sem 1</td>
<td>Project at Garage</td>
<td>Mathematics I (4 AU)</td>
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<td>Year 3, Sem 1</td>
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<td>School Core / Major PE (3 AU)</td>
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<td>Year 3, Sem 2</td>
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<td>School Core / Major PE (3 AU)</td>
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<td>Year 3, Special Term</td>
<td>Final Year Project 1 at NTU / Overseas (12 AU) (For students without Professional Attachment)</td>
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<td>Year 4, Sem 1</td>
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<td>Year 5, 6 and 7</td>
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### Curriculum Overview for Engineering (139 AUs)

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<td>Professional Attachment (4 AU)</td>
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<td>Year 4, Sem 1</td>
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<td>Final Year Project 2 at NTU / Overseas (8 AU) (For students with Professional Attachment)</td>
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<td>Year 4, Sem 2</td>
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Research Opportunities

Pre-research training will be provided to CN Yang Scholars under the Introductory Research Methodology to prepare them with the knowledge in research before they embark on their undergraduate research project.

In Year 1 Semester 2, scholars will be given the opportunity to conduct research work at NTU laboratories under the CNYSP Undergraduate Research Experience project.

From Year 2 Semester 2 onwards, scholars are allowed to commence research attachment for two continuous semesters at any NTU research institutes or external industrial laboratories.

CN Yang Scholars will also undertake 8-month overseas final year project at partner universities.

The programme also offers financial support for overseas research internship, overseas research attachment and international conference.

Year 1
• Pre-research training: Introductory Research Methodology
• CNYSP Undergraduate Research Experience

Year 2 - 3
• Research attachment for two continuous semesters at NTU research institutes or external laboratories
• Project at Garage (optional)

Year 4
• Overseas Final Year Project within 8 months

Year 5 - 7
• PhD at NTU or Joint PhD Overseas with Scholarship (Optional)

Overseas Final Year Project

HENG SHU YUN
Chemistry and Biological Chemistry (Class of 2015)
Currently pursuing Doctor of Medicine (MD) at Duke-NUS Graduate Medical School

Are you thinking how to value-add to your education here at NTU? Why not consider doing a research attachment overseas? I spent a fruitful semester at the University of Edinburgh to do my final year project. It involved the use of lasers to create ‘blisters’ on a metal film coated with carbon nanotubes, and transferring it over to a donor plate. Besides the research skills and knowledge acquired, I was able to gain new experiences and embark on adventures of a lifetime. I interacted with people from all over the world, travelled in Europe, and also savored new cuisine.

Heng Shu Yun (second from left) and her schoolmates in Europe
Garage @ CresPion is an exciting new initiative created for the purpose of encouraging creativity and self-motivated learning within the CresPion and CN Yang scholars community. Through this programme, students are provided with the training, resources and facilities to explore their creativity in generating, testing and realising their ideas in science and engineering. In addition, projects are overseen and guided by knowledgeable and approachable mentors who are enthusiastic in sharing their experience.

Projects

- **Crescent OutRageously Automated Lounge (CORAL)**
  Project video is available here: https://www.youtube.com/watch?v=XpT4KkjK2bA
- **CERN Accelerators Interactive LED Board (Light Hadron Collider (LHC))**
- **Automated Door Opener**

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Two media companies interviewed Assoc Prof Tan Choon Hong, Director-CNYSP on 9 April 2015. The CNYSP was featured about its new curriculum, direct admission to PhD programmes, overseas exposure and two continuous semesters for research attachment.
CORAL was a challenge in multiple aspects: automating a room using only simple and affordable equipment, delivering the project within a short period of time, applying classroom knowledge to real world problems, and acquiring necessary skills that we did not already own. I'm glad we did it.

LIGHT HADRON COLLIDER GROUP

This project was a real test of our problem solving abilities as we were forced to reassemble the wirings with an alternative method less than three days to the deadline. It was amazing to see the board animate exactly as we intended it to, proving a key addition to the CERN exhibition. We learnt a lot through the process and it was a very worthwhile experience overall.

LO QI LIN
Mechanical Engineering
batch 2013

Working with the CORAL team helped me gain an introduction and experience the versatility of Arduino and Raspberry PI in automation. It was certainly rewarding to see our self-written codes and setups come to life as we demonstrated the automated features of the lounge.

LAM WEN LONG AARON
Aerospace Engineering
batch 2014

Through CORAL project, I’ve come to appreciate how much CNYSP invests in our potential as scholars - by providing us with a large workspace, modern equipment and experienced mentors to develop our creativity. A truly rewarding experience!

LOE KELVIN
Electrical and Electronic Engineering
batch 2013

People say one doesn’t know why when things don’t work out the way you were taught, but even if it works out, you don’t know why either. It can be frustrating, but when you finally figured it out, it can be very satisfying, and I think the Garage is the perfect place for that.

AUTOMATED DOOR OPENER GROUP

Through this project, we learnt basic woodworking, soldering and circuitry skills, even got to 3D print our own prototypes!

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In April 2015, I participated in the 7th International Physicists’ Tournament which took place at the University of Warsaw, Poland. Teams representing each country were given a list of problems that required a combination of experimental and theoretical approaches to solve. These problems often had no exact solution and were not described directly in available scientific literature. As the only Year 1 student in the team, I faced several difficulties in trying to solve the problems due to limited knowledge of relevant topics. However, with the research skills CY1500 had taught me, I was able to search for relevant scientific literature, read and evaluate them, enabling me to help craft out a solution for the problems. I also presented my solutions to the international audience and jury members consisting of Professors and PhD students. The course equipped me with helpful tips and tricks to tackle scientific presentations, and was a great help in enabling me to convey the scientific ideas clearly. The numerous presentations also boosted my confidence and with that, I was able to remain calm during my presentation in the competition.

SMRITHI KEERTHIVARMAN
Aerospace Engineering
Present Around the World (PATW) Competition, August 2015

The CY1500 course gives CN Yang scholars an opportunity to dream big and understand the intricacies of a typical research process. During the course, we were required to pick any research area relating to Space Colonisation, write a formal research proposal and then present it to our PhD mentors and classmates. Since the research did not have to be carried out, we were allowed to hypothesise very large scale projects, while still preserving the spirit of scientific inquiry and basing our ideas on solid evidence. It was this freedom that encouraged many of us to dare to choose ground-breaking and revolutionary research problems relating to the exciting idea of space colonisation.

LIM JIA WEI MELVIN
Physics
7th International Physicists’ Tournament

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CERN Learning Trip

In May 2015, 38 of our scholars went for an overseas educational trip to European Organization for Nuclear Research (CERN) in Geneva, Switzerland. The scholars were exposed to a unique and enriching overseas learning experience unlike any before.

CERN was designated very early on in the academic year as the most desirable cutting-edge research and discoveries conducted on its premises. It also offered refreshing and promising educational prospects for our scholars.

The CNYSNP aims to bring together the brightest of minds in Science and Engineering in an environment rigorously tailored to train them in a broad range of sciences, with vast opportunities to learn and apply their knowledge to practical problems.

CN Yang Scholars’ Club

The CN Yang Scholars’ Club is an exclusive club managed by and designed for the scholars in the CN Yang Scholars Programme. Their main roles are to foster close ties between the scholars, to promote the CNYSNP and to look after the welfare of the scholars themselves.

These objectives are achieved mainly through events specially created by the executive committee of the club. Some examples of such events are the freshmen orientation camp, annual dinner and dance, overseas educational trip, regular outings and even exam welfare packages.

As the community of CN Yang Scholars hail from all over the world, the club strives to encourage cross-cultural exchange and interaction through its many activities which are open to all its members. More information and highlights of our club can be found from our Facebook page at https://www.facebook.com/CNYangScholars