NON-GRADUATING NON-EXCHANGE PROGRAMME (NGNE)

3.5 + 0.5 + 1 (MComp / PhD)

https://www.comp.nus.edu.sg/~ngne/

3 February 2021
National University of Singapore

Founded in 1905, the National University of Singapore (NUS) is a world leading autonomous research university in Singapore.

As a century-old university, NUS is ranked consistently as one of the top universities. NUS is ranked 11th in the world, based on the QS World University Rankings 2021.

NUS has a total of 17 faculties and schools, 11 overseas colleges, 30 university-level research institutes and centres, with more than 40,000 students from over 100 countries.

Website: www.nus.edu.sg
NUS Campus

Stephen Riady Centre

Study Corner

University Town

Education Resource Centre
School of Computing

The School of Computing (SoC), established in 1998, is ranked 8th in the world, and 1st in Asia, in the field of computer science, based on Times Higher Education World University Rankings 2021.

◆ Departments
  – Computer Science
  – Information Systems and Analytics

◆ Staff
  – 186 (Teaching)
  – 222 (Research)

◆ Student
  – 4261 (Undergraduate)
  – 948 (Graduate)

Website: https://www.comp.nus.edu.sg/
What is NGNE?

• The Non-Graduating Non-Exchange Programme (NGNE) is a programme designed for final year students to get a taste of a different education system by immersing themselves in one of the world leading universities.

• In general, students will spend one semester (or two in some cases) in NUS attending classes and experiencing the life of a typical SoC undergraduate, with the opportunity to enjoy special computing resources and lab spaces offered by SoC.

• NGNE is a favourable platform if you wish to apply to the SoC Graduate Programme, as students who meet certain requirements in this programme may be considered for early admission into the Master of Computing (MComp) programme.

Website: https://www.comp.nus.edu.sg/~ngne/
NGNE (3.5 + 0.5 + 1)

3.5 years
Home University

0.5 year
NUS NGNE

1 year or more
NUS SoC Graduate Programme
NGNE Programme

3.5 + 0.5 + 1 (MComp) or more (PhD)

<table>
<thead>
<tr>
<th>Duration</th>
<th>August – December 2021</th>
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<tbody>
<tr>
<td>Place</td>
<td>National University of Singapore, School of Computing</td>
</tr>
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</table>
| Merits        | 1. Utilization of Credits  
Level-4000 modules (offered by School of Computing) taken in the NGNE programme can be used to fulfill MComp credit requirement. |
|               | 2. Admission to Master Programme, opportunity to PhD Programme  
NGNE students who meet certain requirements in NGNE programme will be considered for early admission to the Master of Computing (MComp) Programme. Students who perform exceptionally well would stand a chance to be offered to the PhD programme. |
|               | 3. Graduate Programme Dissertation  
Students could extend their Independent Project (CP3106) topic as their Graduate Programme dissertation. |
Are you a student from a partnering school/college of our partner university?

Yes

No, but attended 2018 or 2019 NUS SoC Summer Workshop

CONSIDERATION FOR PRE-APPROVAL

Email required documents to ngne@comp.nus.edu.sg for consideration of Pre-Approval

OFFICIAL APPLICATION

Submit official application via NUS online application portal

CONSIDERATION FOR PRE-APPROVAL

Depending on the arrangement with your school, EITHER

Submit required documents to your school OR

Email required documents to ngne@comp.nus.edu.sg for consideration of Pre-Approval

PRE-APPROVAL

Receive email notification of Pre-Approval

SUBMISSION OF HARD COPY DOCUMENTS

Submit hard copy application documents by post to NUS Registrar’s Office before the stipulated deadline

If successful

If successful

Yes
Consideration for Pre-Approval

– Students from partnering school/college

• SoC will work with partnering schools/colleges in reviewing the application for consideration of Pre-Approval

• Unless SoC has a special arrangement with your school/college, by default, students should submit the following documents to ngne@comp.nus.edu.sg for consideration of Pre-Approval before **30 March 2021** (for August 2021 intake):
  ✓ Application form (to be downloaded from NGNE official website: https://www.comp.nus.edu.sg/~ngne/Application%203.htm#ConsiderationofPreApproval)
  ✓ Academic transcript in English
  ✓ An official certification of GPA and/or average score from home school, if GPA and/or average score is not shown in the transcript
  ✓ NUS SoC Summer Workshop transcript (if any)
  ✓ English qualifications (either one of the following: CET6, TOEFL or IELTS)
  ✓ CV in English
  ✓ Certificates of awards or achievements (if any)

• Please combine all the documents (except application form) into **one pdf file** – for application form, please send it to us in its **original excel format**
Consideration for Pre-Approval
– Students NOT from partnering school/college

• Students who are not from partnering school/college but have attended 2018 or 2019 NUS SoC Summer Workshop may also apply for NGNE

• Please submit the following documents to ngne@comp.nus.edu.sg for consideration of Pre-Approval before 30 March 2021 (for August 2021 intake):
  ✓ Application form (to be downloaded from NGNE official website: https://www.comp.nus.edu.sg/~ngne/Application%203.htm#ConsiderationofPreApproval)
  ✓ Academic transcript in English
  ✓ An official certification of your GPA and/or average score from your school, if your GPA and/or average score is not shown in the transcript
  ✓ NUS SoC Summer Workshop transcript
  ✓ English qualifications (either one of the following: CET6, TOEFL or IELTS)
  ✓ CV in English
  ✓ Certificates of awards or achievements (if any)
  ✓ Letter from your home university stating its endorsement for your participation in the NGNE programme if officially approved by NUS

• Please combine all the documents (except application form) into one pdf file – for application form, please send it to us in its original excel format
Pre-Approval

• Upon successful application, you will receive notification of Pre-Approval via email, regardless of whether you are from a partner university or not.
• You **MUST** receive Pre-Approval from NUS SoC before you can submit application at the NUS online application portal.

CV submission for Pre-Approval

• CV is the most important document for consideration of Pre-Approval.
• Project topic / Supervisor matching will be done based on students’ CV.
• CV should include:
  - Academic performance
  - English proficiency
  - Any awards and achievements
  - Working/project experience
  - Interest areas and future plans
  - Other useful materials
Online Application

• After receiving Pre-Approval, students should submit the following documents during the official application via NUS online application portal:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Copy of passport showing your particulars</td>
</tr>
<tr>
<td>2.</td>
<td>Record of courses taken in current semester/term</td>
</tr>
<tr>
<td>3.</td>
<td>Official academic transcript (including grading explanation/remarks) with English translation if the original transcript is not in English</td>
</tr>
<tr>
<td>4.</td>
<td>English qualifications (CET6, TOEFL or IELTS)</td>
</tr>
<tr>
<td>5.</td>
<td>Student Status Letter issued by your home university</td>
</tr>
<tr>
<td>6.</td>
<td>Documentary proof of financial support in English</td>
</tr>
</tbody>
</table>

• After submitting online application, print out the online application form and send it together with all the documents listed above to NUS Registrar’s Office by post.

Checklist for online application: [http://www.nus.edu.sg/registrar/docs/info/prospective-students---non-graduating/ngchecklist.pdf](http://www.nus.edu.sg/registrar/docs/info/prospective-students---non-graduating/ngchecklist.pdf)
Financial Proof Required in Online Application

- The documentary proof of financial support should certify your financial ability to make payment for the **Miscellaneous Student Fees (MSFs)** and **tuition fees for at least 3 modules** (6 modules if you are studying in NUS for two semesters).

- For the actual rates of MSF and tuition fees, please refer to this page.

- You may submit a **bank statement** (original, certified true copy or electronically generated statements will be accepted) OR **a certificate of deposit (存款证明) in English** issued by the bank as a proof that you (or your parent) have the stated amount in the bank account. The bank statement/certificate should not be dated more than 6 months from the intended date of admission.
## Timeline (August 2021 Semester)

<table>
<thead>
<tr>
<th>Time</th>
<th>Things to note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 30 March 2021</td>
<td>Submit application materials to <a href="mailto:ngne@comp.nus.edu.sg">ngne@comp.nus.edu.sg</a> for consideration of Pre-Approval.</td>
</tr>
<tr>
<td>21 March – 15 April 2021</td>
<td>Submit official application via NUS online application portal after obtaining Pre-Approval.</td>
</tr>
<tr>
<td>1 May 2021</td>
<td>Submission deadline of hard copy application documents.</td>
</tr>
<tr>
<td>Mid May 2021</td>
<td>Work with NGNE coordinator to confirm supervisor &amp; courses to take. Work with supervisor on project details; Get CP3106 project form signed and submitted to <a href="mailto:ngne@comp.nus.edu.sg">ngne@comp.nus.edu.sg</a></td>
</tr>
<tr>
<td>Mid June 2021</td>
<td>Receive official offer from NUS Registrar’s Office. Apply for on-campus accommodation.</td>
</tr>
<tr>
<td>Early July 2021</td>
<td>Receive In-principle Approval (IPA, used as entrance VISA and for application of Student’s Pass) for entry to Singapore. Purchase air ticket.</td>
</tr>
<tr>
<td>Before 9 August 2021</td>
<td>Apply for Entry Approval and arrive in Singapore one to two weeks before start of semester for registration.</td>
</tr>
<tr>
<td>9 August – 12 November 2021</td>
<td>Semester 1 instructional period. 13 weeks + 1 recess week. Each week, student should spend around 4 days on the project, 2 days on the modules, meet the supervisor (either online or face-to-face) at least an hour or more. Students are to submit a draft report to both their supervisor and another appointed evaluator by <strong>12 November, 5pm</strong>.</td>
</tr>
<tr>
<td>13 November – 19 November 2021</td>
<td>Reading week (preparation for final exam). On <strong>19 November</strong>, there will be an evaluation session by the supervisor and the appointed evaluator.</td>
</tr>
<tr>
<td>20 November – 4 December 2021</td>
<td>Course examination &amp; project/report evaluation (supervisor + reviewer)</td>
</tr>
<tr>
<td>1 January 2022</td>
<td>Master of Computing (MComp) application open date.</td>
</tr>
<tr>
<td>15 March 2022</td>
<td>MComp application deadline.</td>
</tr>
<tr>
<td>End July 2022</td>
<td>If successful in gaining admission to graduate programme, return to Singapore/NUS.</td>
</tr>
</tbody>
</table>
Completion Requirements

- August intake:
  - Complete 2 elective modules with at least one level-4000 module
  - Complete Independent Project module (CP3106)

Note: Students are strongly encouraged to choose modules of level 3000 or above
## Undergraduate Modules (Semester 1)

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Title</th>
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<th>Module Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BT2102</td>
<td>Data Management and Visualisation</td>
<td>BT4212</td>
<td>Search Engine Optimization and Analytics</td>
</tr>
<tr>
<td>CS2040C</td>
<td>Data Structures and Algorithms</td>
<td>CS2104</td>
<td>Programming Language Concepts</td>
</tr>
<tr>
<td>CS2107</td>
<td>Introduction to Information Security</td>
<td>CS2220</td>
<td>Introduction to Computational Biology</td>
</tr>
<tr>
<td>CS3103</td>
<td>Computer Networks Practice</td>
<td>CS3219</td>
<td>Software Engineering Principles and Patterns</td>
</tr>
<tr>
<td>CS3235</td>
<td>Computer Security</td>
<td>CS3237</td>
<td>Introduction to Internet of Things</td>
</tr>
<tr>
<td>CS4211</td>
<td>Formal Methods for Software Engineering</td>
<td>CS4212</td>
<td>Compiler Design</td>
</tr>
<tr>
<td>CS4223</td>
<td>Multi-core Architectures</td>
<td>CS4224</td>
<td>Distributed Databases</td>
</tr>
<tr>
<td>CS4226</td>
<td>Internet Architecture</td>
<td>CS4232</td>
<td>Theory of Computation</td>
</tr>
<tr>
<td>CS4234</td>
<td>Optimisation Algorithms</td>
<td>CS4236</td>
<td>Cryptography Theory and Practice</td>
</tr>
<tr>
<td>CS4239</td>
<td>Software Security</td>
<td>CS4243</td>
<td>Computer Vision and Pattern Recognition</td>
</tr>
<tr>
<td>CS4246</td>
<td>AI Planning and Decision Making</td>
<td>CS4249</td>
<td>Phenomena and Theories of Human-Computer Interaction</td>
</tr>
<tr>
<td>IS3150</td>
<td>Digital Media Marketing</td>
<td>IS3240</td>
<td>Digital Platform Strategy and Architecture</td>
</tr>
<tr>
<td>IS4204</td>
<td>IT Governance</td>
<td>IS4231</td>
<td>Information Security Management</td>
</tr>
</tbody>
</table>

*Actual modules offered are subject to change.*
CP3106: Independent Project

- CP3106 is a project module equivalent to graduation project.

- A student who wishes to be considered for direct admission into MComp must complete CP3106.

- Student will work with a professor as supervisor on a topic
  Professors have different working styles. Some professors will propose a project to the student, while some would prefer students to work out the project scopes. In general, students can try to read and identify “gaps” in current research (i.e. missing link, interesting work that has not been done, or interesting problems not known before hand) through extensive readings of literature to form a big picture on what can be done further.

- Workload requirement
  Each week, students should spend around 4 days on the project. Students should meet (either online or face-to-face if allowed) and discuss with the supervisor for at least an hour each week.
CP3106: Potential Supervisors

- Below are some of our past supervisors for NGNE (they are likely to take some students for August 2021):
  (See their profiles at: [https://www.comp.nus.edu.sg/about/faculty/](https://www.comp.nus.edu.sg/about/faculty/))

<table>
<thead>
<tr>
<th>Supervisor Name</th>
<th>Area of Expertise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angela Yao</td>
<td>(AI, Media)</td>
</tr>
<tr>
<td>Anthony Tung</td>
<td>(DB)</td>
</tr>
<tr>
<td>Chan Chee Yong</td>
<td>(DB)</td>
</tr>
<tr>
<td>Chang Ee Chien</td>
<td>(Security, Media, Systems &amp; Networking)</td>
</tr>
<tr>
<td>Chan Mun Choon</td>
<td>(Systems &amp; Networking)</td>
</tr>
<tr>
<td>Chin Wei Ngan</td>
<td>(Programming Languages &amp; Software Engineering)</td>
</tr>
<tr>
<td>Danny Poo</td>
<td>(Intelligent Systems, Data Science &amp; Business Analytics, Healthcare Informatics)</td>
</tr>
<tr>
<td>Huang Zhiyong</td>
<td>(Graphics, HCI)</td>
</tr>
<tr>
<td>Ken Sung</td>
<td>(Algorithms &amp; Theory, Computational Biology)</td>
</tr>
<tr>
<td>Khoo Siau Cheng</td>
<td>(Programming Languages &amp; Software Engineering)</td>
</tr>
<tr>
<td>Lee Wee Sun</td>
<td>(Machine Learning)</td>
</tr>
<tr>
<td>Leong Hon Wai</td>
<td>(Algorithm, Big Data)</td>
</tr>
<tr>
<td>Leong Tze Yun</td>
<td>(AI, Machine Learning)</td>
</tr>
<tr>
<td>Liang Zhenkai</td>
<td>(Security, Systems &amp; Networking)</td>
</tr>
<tr>
<td>Ooi Wei Tsang</td>
<td>(Media)</td>
</tr>
<tr>
<td>Richard Ma</td>
<td>(Systems &amp; Networking)</td>
</tr>
<tr>
<td>Tan Tiow Seng</td>
<td>(Computational Geometry, GPU, Algorithms and Data Structures)</td>
</tr>
<tr>
<td>Tay Yong Chiang</td>
<td>(Network, DB)</td>
</tr>
<tr>
<td>Teo Yong Meng</td>
<td>(Architecture, parallel)</td>
</tr>
<tr>
<td>Terence Sim</td>
<td>(Vision)</td>
</tr>
<tr>
<td>Wong Weng Fai</td>
<td>(GPU, Neural Network)</td>
</tr>
<tr>
<td>Wang Wei</td>
<td>(DB)</td>
</tr>
<tr>
<td>Wynne Hsu</td>
<td>(DB, Machine Learning)</td>
</tr>
<tr>
<td>Xiao Xiaokui</td>
<td>(DB)</td>
</tr>
</tbody>
</table>
NGNE students who met the following requirements may be considered for early admission to the Master of Computing (MComp) Programme:

- All elective modules with grade B+ or above
- Independent Project (CP3106) with grade A- or above

An interview may be conducted before a decision to offer is made.

Past Participants’ Feedback

"I think the NGNE programme is very helpful. I have experienced the educational environment in a different country. It is very difficult to know what to do at first, for example, I do not know what tutorials are, but gradually I can get used to it. Besides, my supervisor is very nice. She and her students gave me many suggestions on my project. The weekly meeting helps me to correct my mistakes during my research. The coronavirus causes a lot of trouble at the end of the programme, for example, it is difficult to return to China. However, the NUS and NGNE programme staff provide us a lot of assistance during such hard times. Therefore, I think it is very wonderful."

— Participant from Zhejiang University, AY2019/2020

"I would like to thank NUS SoC for giving me the opportunity to attend the NGNE programme. Although it was difficult to adapt to the workload at first, I did feel that my professional skills and psychological ability have both improved a lot in the end because of the top-class learning experience and the excellent academic resources provided here. Since I participate in the NGNE programme, I’ve always had an idea about joining the MComp programme, and regard it as a goal. The experience and gains of this semester strengthen my idea even more. I will always be thankful for this experience and all the help from teachers, staff and classmates."

— Participant from Sichuan University, AY2019/2020
"My supervisor was Prof Leong and we worked on a project about dynamic decision making and reinforcement learning on a robot simulation platform. It aims to design a high-level language which allows the users to specify their problem and automatically build a mathematical model and then solve the problem. The topic is very abstract for me at the beginning, but with the guidance of Prof Leong, I successfully understood its meaning, realized the target interface and applied RL algorithms onto the target platform.

Prof Leong and everyone in her group are very nice! We arranged group meetings every week, in which we shared the papers read recently, the progress of our projects and new research results with each other. These experiences helped me improve my research ability and I have to say thank you to everyone!

Since this is a special period, it's difficult to return to my home country, so I applied to Prof Leong for an internship this summer and she agrees. It's very happy to have more time with the group and do some related research work here."

— Participant from Xi'an Jiaotong University, AY2019/2020
"I have had a wonderful time with Professor Teo, and I would like to express my sincere appreciation to him. From the determination of the project theme, to the daily research and study, and finally to the revision of the report, Prof Teo took countless time to give me careful guidance and continued support from all aspects. Professor Teo's rigorous attitude in scientific research deeply affected me, which I think I will enjoy the benefit all my life."

— Participant from University of Electronic Science and Technology of China, AY2019/2020
NGNE Estimated Expenses

• Tuition fees (excluding miscellaneous fees)
  ✓ SoC standard fee per module: SGD3,820
  ✓ 3 modules (CP3106 is also considered as one module) = SGD11,460

• Estimated living expense (including accommodation):
  ✓ Around SGD1,000 per month
MComp Estimated Expenses

• Tuition fees (excluding miscellaneous fees)
  ✓ Master of Computing specialising in Computer Science / Information Systems / Infocomm Security / Artificial Intelligence: SGD48,000
  ✓ Master of Science in Business Analytics: SGD58,000
  ✓ Master of Computing – General Track: SGD58,000
  ✓ Above tuition fees are subject to 7% GST (Goods & Services Tax)

• Estimated living expense (including accommodation):
  ✓ SGD1,000 per month
  ✓ 1 year in Singapore: ~SGD12,000

MComp: http://www.comp.nus.edu.sg/programmes/pg/mcs/
PhD Programme

- Research scholarships are offered for PhD Programme
- Full tuition fee subsidy with a monthly allowance of SGD2,000
- Scholars in a PhD programme may be eligible for an additional stipend of up to $500 per month upon passing the PhD Qualifying Examination (QE), which is normally held 12 to 18 months after registration of candidature. The additional stipend is renewable each semester subject to good performance.
- Estimated living expense (including accommodation): SGD1,000 per month

PhD Scholarships:
https://www.comp.nus.edu.sg/programmes/pg/phdcs/scholarships/