LEAD THE CHANGE • INNOVATE THE FUTURE

School of Computer Science and Engineering

Bachelor of Engineering (Computer Engineering)  Bachelor of Engineering (Computer Science)  Bachelor of Science (Data Science and Artificial Intelligence)
**ADMISSION CRITERIA**

### Computer Engineering Programme

**GCE 'A' Level**
- Pass in H2 Level Mathematics, and
- Pass in H2 Level Biology/Chemistry/Computing/Physics, and
- Pass in H1 Level/’O’ Level Physics* or equivalent.

**International Baccalaureate**
- Pass in HL Mathematics, and
- Pass in HL Biology/Chemistry/Computer Science/Physics, and
- Pass in SL Physics** or equivalent.

**NUS High School Diploma**
- Major CAP of 2.0 in Mathematics, and
- Major CAP of 2.0 in Biology/Chemistry/Physics, and
- Overall CAP of 2.0 in Physics* or equivalent.

**International & Other Qualifications**
- Pass in Senior High School Level Mathematics, and
- Pass in Senior High School Level Biology/Chemistry/Physics, and
- Pass in Junior High School Level Physics^^

**Diploma Holders**
Applicants should have a relevant diploma from one of the local polytechnics and those with a Certificate of Merit, Diploma with Merit or Diploma with Distinction may apply for any programme in NTU.

For the list of acceptable local diplomas and exempted courses, please visit, [http://www.ntu.edu.sg/url/localdiploma.html](http://www.ntu.edu.sg/url/localdiploma.html)

*Pass in H1 Level or ‘O’ Level Physics is only applicable to applicants who have not read H2 Level Physics.
**Pass in SL Physics is only applicable to applicants who have not read HL Physics.
*Overall CAP of 2.0 in Physics is only applicable to applicants who have not majored in Physics.
^^Pass in Junior High School Level Physics is only applicable to applicants who have not read Senior High School Level Physics.

### Computer Science Programme

**GCE ‘A’ Level**
- Pass in H2 Level Mathematics, and
- Pass in H2 Level Biology/Chemistry/Computing/Physics

**International Baccalaureate**
- Pass in HL Mathematics, and
- Pass in HL Biology/Chemistry/Computer Science/Physics

**NUS High School Diploma**
- Major CAP of 2.0 in Mathematics, and
- Major CAP of 2.0 in Biology/Chemistry/Physics

**International & Other Qualifications**
- Pass in Senior High School Level Mathematics, and
- Pass in Senior High School Level Biology/Chemistry/Physics

**Diploma Holders**
Applicants should have a relevant diploma from one of the local polytechnics and those with a Certificate of Merit, Diploma with Merit or Diploma with Distinction may apply for any programme in NTU.

For the list of acceptable local diplomas and exempted courses, please visit, [http://www.ntu.edu.sg/url/localdiploma.html](http://www.ntu.edu.sg/url/localdiploma.html)

### Data Science & Artificial Intelligence Programme

Refer to Computer Science Programme. More details on programme refer to [www.scse.ntu.edu.sg](http://www.scse.ntu.edu.sg)

### Double Major Bachelor of Science (Honours) in Mathematical and Computer Sciences (MACS)

Refer to Computer Science Programme. More details on programme refer to [www.scse.ntu.edu.sg](http://www.scse.ntu.edu.sg)

For more information, go to Undergraduate Admissions at [www.ntu.edu.sg/admissions](http://www.ntu.edu.sg/admissions)
In recent years, Singapore has been moving steadfastly in its goal to build a Smart Nation by harnessing technology to the fullest, with the aim of improving the lives of its citizens by creating more opportunities and building stronger communities. The School of Computer Science and Engineering (SCSE) of Nanyang Technological University (NTU), is well poised to support this initiative. SCSE equips its students with the necessary knowledge and skills to make Singapore’s goal a reality. It transforms its students through a comprehensive and well planned curriculum which allows students to acquire prowess in the respective field of study.

In this dynamic technologically-advancing world, it is key to note that mere academic knowledge alone will not suffice to further one’s own development or achieve a Smart Nation. The ability to apply the knowledge acquired in a practical and efficient way is what sets our students apart. All assignments and project works in our programmes require students to exercise their creativity, in addition to grasping and application of theoretical knowledge. NTU SCSE is also equipped with the requisite facilities to realise this very need. Coupled with highly competent world class faculty, these facilities are used to the fullest, allowing students to have enriching practical experiences. In doing so, students are better able to understand the kind of working environment they might be in and develop into outstanding computer scientists and engineers.
SCSE has prominently established itself in a number of key areas of research, such as Artificial Intelligence, Big Data Analytics, Cyber Security, Cloud Computing, Game Innovation, User Experience, Urban and Sustainability Informatics and Internet-of-Things. Greatly aided by state-of-the-art infrastructure and resources, the school fosters a vibrant culture for undertaking cutting-edge research to innovate viable technologies and solutions for a wide variety of domains in computer science and engineering.

This is a great asset for Singapore in its quest to become a Smart Nation, as the technological savviness of today’s youths determine the fate of the nation being leaders of tomorrow. The growing affluence with technology amongst today’s youths is crucial to the improvement of quality of life in Singapore and to empower our communities.

In short, SCSE students are privy to a unique balance of expertise in computer science and engineering, which facilitates distinctive and interdisciplinary research that stimulates innovation. By allowing students the freedom to think on their feet and assess situations, SCSE is nurturing cohorts of versatile and adaptable individuals. As such, the school is well positioned to play a vital role in realising Singapore’s vision.
**UNDERGRADUATE PROGRAMMES**

*SCSE B.Eng programmes are accredited by the Engineering Accreditation Board (EAB) of Institution of Engineers Singapore (IES).

**Full Time Programmes (Honours Based on Merit)**
- Bachelor of Engineering (Computer Engineering)*
- Bachelor of Engineering (Computer Science)*

**Double Degree in Computer Engineering/Computer Science & Business**
- Bachelor of Business** awarded by Nanyang Business School and
- Bachelor of Engineering (Computer Engineering or Computer Science)

**Full Time Programmes (Honours Based on Merit)**
- Bachelor of Science (Data Science & Artificial Intelligence)

**Double Degree in Computer Engineering/Computer Science and Economics**
- Bachelor of Arts in Economics awarded by School of Humanities and Social Sciences and
- Bachelor of Engineering (Computer Engineering or Computer Science)

**Computer Engineering/Computer Science with a Second Major in Business**

**Double Major Bachelor of Science (Honours) in Mathematical and Computer Sciences (MACS)**

* Part Time Course Available - Refer to scse.ntu.edu.sg for more details.
** With Specialisation in Business Analytics
Digitisation has spread to a wide range of applications, from technology and telecommunications to control systems etc. In this time and age, digital circuitry has rapidly replaced many analog systems. Digital System Design is one of a number of specialist courses within the Computer Engineering programme which facilitates students to develop in-depth understanding of the design and evaluation of control and data structures for digital systems.

Hardware design languages are used to describe and design hardware systems ranging from simple logic devices to reasonably complex computer architectures and control units. The Computer Engineering programme also covers basic computer architecture, memories, digital interfacing, timing and synchronisation, as well as microprocessor systems design.

As such, Computer Engineering students will acquire essential knowledge and skills to design and build a variety of digital circuits and systems.
Likewise, students also gain skills useful for emerging areas such as System-on-Chip and Internet-of-Things device. Such skills include writing software and firmware for embedded microcontrollers, operating systems, analog sensors, communication sensors and mixed signal circuit boards, among many other areas. These skills will eventually lead them to become well versed and trained in areas such as coding, cryptography, information networks and systems, wireless networks, embedded systems, speech processing, robotics and much more.

The project under Digital System Design undertaken in Year 2, has helped me to understand the basics of building a Central Processing Unit, focusing on time and synchronisation to pipeline data for processing. It allowed us to examine as well as understand how to build a color space conversion circuit in a predesigned system while applying logic to detect skin region and alter those regions by manipulating the colors of the skin areas detected. This project is essential to understand the application of real time systems in the real world.

Ong Shu Wei
Computer Engineering Year 4
### BEng (CE) Programme
Applicable to students matriculating from 2018 onwards

#### YEAR 1
- Engineering Mathematics I
- Engineering Mathematics II
- Introduction to Computational Thinking
- Physics for Computing
- Algorithms
- Object Oriented Design & Programming
- Circuits and Signal Analysis
- Operating Systems
- Microprocessor-based Systems Design
- Ethics & Moral Reasoning
- Liberal Arts
- Digital Logic
- Engineering Communication I
- Sustainability: Seeing Through The Haze
- English Proficiency

#### YEAR 3
- Sensors, Interfacing and Control
- Multidisciplinary Design Project
- Computer Networks
- Technical Elective 1
- Final Year Project
- Digital Communications
- Digital Signal Processing
- Unrestricted Electives
- Technical Elective 2
- Technical Elective 3
- Technical Elective 4
- Technical Elective 5
- Technical Elective 6

#### Elective Focus
- Artificial Intelligence
- Data Science and Analytics
- High Performance Computing
- Cyber Security
- Networking and Mobility
- Cyber Physical Systems
## BEng (CS) Programme

### Year 2
- Science & Technology
- Computer Organisation and Architecture
- Data Structures
- Discrete Mathematics
- Algorithms
- Object Oriented Design & Programming
- Human Computer Interaction
- Operating Systems
- Introduction to Databases
- Science & Technology
- Unrestricted Electives
- Computer Graphics and Visualisation
- Software Engineering
- Advanced Computer Architecture
- Software Systems Analysis and Design
- Business & Management
- Kickstart your Career Success

### Year 4
- Final Year Project
- Artificial Intelligence
- Compiler Techniques
- Unrestricted Electives
- Technical Elective 2
- Technical Elective 3
- Technical Elective 4
- Technical Elective 5
- Technical Elective 6
- Artificial Intelligence
- Data Science and Analytics
- High Performance Computing
- Cyber Security
- Networking and Mobility

The curriculum is correct at the time of printing. For updates/changes in modules for programme, please refer to scse.ntu.edu.sg
Computer Science is concerned with the efficient application of computer technology, through the design of software algorithms and data structures, design methodologies and language paradigms. The programme emphasises the practical design of efficient and reliable software to meet specifications. As computer science focuses more on software design and construction, it does not include subjects on circuits, basic electronics or digital communications.

**Software Programmes**

Computer science students are also trained to understand the functionality and important features of the hardware present in the processors so that they can write efficient programmes and design software. The students will be able to develop programmes to achieve high performance through awareness of data-path and memory design along with the parallelism at instruction, data and thread level. They will be able to understand the technical aspect of a CPU while selecting a computer system to be used for certain level of performance.

The undergraduate programmes by the school also enable our students to acquire the necessary skills and knowledge to design their own mobile applications. From project management, programming and design, students will get to learn about the intricacies of developing huge and complex software systems to mobile apps. The other modules in SCSE, such as Artificial Intelligence and Human Computer Interaction will enable students to hone other skills apart from programming.
As part of the curriculum, our team has developed a mobile application, Helping Hearts, to serve as a platform to connect the elderly and volunteers. The application was built in order for the community to easily volunteer to help the older generation who are in need of a helping hand. The task specified by these elderly can be as simple as needing help with groceries shopping, which can be a daunting task to them. Our team did a lot of research on elderly behavior and identified the need to make it user-friendly for the less technology literate, such as scanning their IC barcode to login and voice recording to describe their needs. The mobile application leverages on mobile technologies, such as camera, voice recording and GPS functions to help elderly to conveniently create a help request that volunteers can participate. It excites us to be able to work on projects that enhance the life of our community, and even more so when we build new friendships along the way. Our decision to embark on this project was based on the known increasing ratio of elderly to millennials in Singapore. As the percentage of elderly living alone and in vulnerability climbs, we felt there is a strong need to make use of current technology to create a medium for easy access to aide.
## DOUBLE DEGREE
### COMPUTER ENGINEERING OR COMPUTER SCIENCE WITH BUSINESS

The School of Computer Science and Engineering and the Nanyang Business School have come together to design two hybrid undergraduate Double Degree programmes to meet the challenges of a changing economic landscape. A specialisation in business analytics will equip students to monitor target markets, analyse information and forecast future trends across various industries while formulating ways to improve business strategies, operations and business decisions.

The double degree programme is a comprehensive and well-rounded curriculum to be completed in 4 years while integrating two disciplines, thereby broadening the scope of the students and enabling them to leverage on a kaleidoscope of opportunities.

The programmes are planned to enable graduates to hone their business management and computer science and engineering skills, helping to discover and maximise their capabilities which will enable them to develop relevant skills that are much sought after in today’s job market.

### BEng (CS) and BBus (with BA Specialisation)

#### YEAR 1
- Engineering Mathematics I
- Engineering Mathematics II
- Introduction to Computational Thinking
- Physics for Computing
- Algorithms
- Object Oriented Design and Programming
- Computer Graphics and Visualisation
- Management Accounting
- Designing & Developing Databases
- Analytics I: Visual and Predictive Analytics
- Ethics & Moral Reasoning
- Discrete Mathematics
- Digital Logic
- Computer Organisation and Architecture
- Data Structures

#### YEAR 3
- Advanced Computer Architecture
- Advanced Software Engineering
- Software Systems Analysis and Design
- Marketing
- Unrestricted Electives
- Enterprise & Innovation
- Final Year Project
- Net Centric Computing
- Technical Elective 1
- Technical Elective 2
- Principles of Economics
- Business/CS Integration 2
- Science & Technology
- Compiler Techniques
- Technical Elective 3
- Business/CS Integration 3
- Strategic Management

### Business (CS/CE) Integration Courses (Students to choose any 3)
- Enterprise Analytics
- Financial Service Processes and Analytics
- Social Media and Digital Analytics
- Service Operations Management
- Lean Operations & Analytics

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The double degree programme is a comprehensive and well-rounded curriculum to be completed in 4 years while integrating two disciplines, thereby broadening the scope of the students and enabling them to leverage on a kaleidoscope of opportunities.

The programmes are planned to enable graduates to hone their business management and computer science and engineering skills, helping to discover and maximise their capabilities which will enable them to develop relevant skills that are much sought after in today’s job market.
Such a mix of business skills and technical knowledge will definitely provide graduates an edge over their competitors and also a wider range of career opportunities.

Graduates are also given the exciting opportunity to embark on a 10-week Professional Attachment in leading technology, management consulting or financial firms in key industries.

The curriculum is correct at the time of printing. For updates/changes in modules for programme, please refer to scse.ntu.edu.sg
DATA SCIENCE & ARTIFICIAL INTELLIGENCE

This is a full time four-year direct honours Bachelor of Science degree programme jointly offered by SCSE and the School of Physical and Mathematical Sciences (SPMS). The programme targets visionary students who aspire to master the demands of integrating the synergistic disciplines of computer science and statistics for the study of data science (DS) and artificial intelligence (AI).

This programme will provide students opportunities to solve real-life problems in different application domains ranging from science and technology, healthcare and clinical medicine, business and finance, environmental sustainability, etc. using their knowledge in DS and AI. As such, there will be rich opportunities for graduating students to work across multiple domains of the digital economy and participate in enhancing Singapore’s global competitiveness.
DSAI Graduates can expect to be employed as:

- Machine Learning Engineer
- Data Scientist
- Research Scientist
- R&D Engineer
- Business Intelligence Developer
- Computer Vision Research Engineer
- Data Analyst
- Data Architect
- AI Engineer
- AI Scientist

**Semester 1**
- Calculus for the Sciences
- Introduction to Computational Thinking
- Discrete Mathematics
- Scientific Communication I
- English Proficiency
- Prescribed Elective
- Unrestricted Elective

**Semester 2**
- Linear Algebra for Scientists
- Introduction to Data Science
- Data Structures
- Defence Science
- Prescribed Elective
- Unrestricted Elective

**Semester 1**
- Calculus III
- Probability and Introduction to Statistics
- Algorithms
- Object Oriented Design and Programming
- Human Computer Interaction

**Semester 2**
- Statistics
- Data Analysis with Computer
- Introduction to Database Systems
- Scientific Communication II
- Unrestricted Elective
- Kickstart your Career Success

**Semester 1**
- Artificial Intelligence
- Data Analytics and Mining
- Prescribed Electives
- Sustainability: Seeing Through the Haze
- Unrestricted Electives

**Semester 2**
- Professional Internship

**Semester 1**
- Final Year Project
- Parallel Programming
- Prescribed Electives
- Ethics & Moral Reasoning

**Semester 2**
- Final Year Project
- Enterprise & Innovation
- Machine Learning
- Prescribed Electives

**Major Prescribed Electives**
- Regression Analysis
- Basic Optimization
- Time Series Analysis
- Multivariate Analysis
- Sampling & Survey
- Survival Analysis
- Econometrics
- Applied Bayesian Statistics

- Applied Categorical Data Analysis
- Data Applications in Natural Sciences
- Simulation Techniques in Finance
- Cryptography and Network Security
- Database System Principles
- Information Retrieval
- Natural Language Processing
- Network Sciences

- Big Data Management
- Data Science for Business
- Data Visualization
- Developing Data Products
- Distributed Computing for Data Science and AI
- Social Media Mining
- Media Planning and Strategies

Note: The curriculum is correct at the time of printing. For updates/changes in modules for programme, please refer to scse.ntu.edu.sg
COMPUTER ENGINEERING/COMPUTER SCIENCE WITH A SECOND MAJOR IN BUSINESS

Offered by NTU’s School of Computer Science and Engineering (SCSE) and Nanyang Business School, The Bachelor of Engineering with a Second Major in Business (EGBM) programme integrates the requirements of both the Engineering and Business majors within the typical candidature of 4 years. Right from Year 1, the EGBM curriculum incorporates Business foundation courses alongside Engineering major courses. At the end of Year 1, students can continue with the Second Major in Business (Mainstream) or branch into the International Trading Programme (ITP) *

Second Major in Business (Mainstream)

**Foundation Business Courses**
- Financial Accounting
- Financial Management
- Business Law
- Marketing
- Organisational Behaviour and Design
- Business Operations and Processes

**Advanced Business Courses (Choose 3)**
- Investments
- Market Behaviour
- Market Intelligence
- Management Principles, Skills and Competencies

Second Major in Business (International Trading Programme)

**Foundation Business Courses**
- Financial Accounting
- Financial Management
- Marketing
- Business Operations and Processes

**ITP courses**
- International Tax and Trading Law
- Commodities Trading
- Commodities’ Geology and Metallurgy
- Enterprise Risk Management (New)
- Commodities Finance (New)
- Introduction to Ship Chartering and Trade Practice (New)
- Industry Seminar

Excellent opportunities await Graduates in economic sectors such as Aerospace Industries, Banking and Financial Services, Business, Engineering and Design Consultancies, Educational and Research Institutions as well as Government Agencies besides others

For more information on Second Major in Business – Mainstream / International Trading Programme please visit www.coe.ntu.edu.sg/EngBizMajor.

*Note: Information is correct at the time of printing. For updates/detailed modules for programme, please refer to scse.ntu.edu.sg*
BACHELOR OF SCIENCE (HONOURS) IN MATHEMATICAL AND COMPUTER SCIENCES

This four-year double major degree programme is in partnership with the School of Physical and Mathematical Sciences and aims to attract top students who can master the technically demanding disciplines from both schools.

The programme provides students with strong foundations in their two majors with core courses and in-depth specialized training in one of four areas at the interface of Mathematical Sciences and Computer Science

Areas of Specialisation: Theoretical Computer Science, Cryptography and Cybersecurity, Financial Modelling, and Data Science.

Double Major Programme
Bachelor of Science in Mathematical and Computer Sciences

<table>
<thead>
<tr>
<th>Minimum Subject Requirements</th>
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<tbody>
<tr>
<td><strong>Singapore-Cambridge GCE ‘A’ Level</strong></td>
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<tr>
<td>H2 Level pass in Mathematics and H2 Level pass in Physics/Chemistry/Biology/Computing</td>
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Graduates from the programme are expected to either be ICT leaders and entrepreneurs in fast developing areas such as Financial Technology, Cybersecurity, and Data Analytics, or pursue postgraduate degrees in Mathematics and Computer Science related disciplines.

Note: Information is correct at the time of printing. For updates/detailed modules for Double Major BSc (Hons) in Mathematical and Computer Sciences please refer to scse.ntu.edu.sg
This 2-semester individual project taken during the final year of the study offers students the opportunity to undertake design, analysis and implementation of a substantial project in any particular area of Computer Engineering or Computer Science. Each student will be guided by an academic staff during the project duration on how to apply the knowledge and concepts learnt in classes to practical application developments that are useful in real world.
Precision Landing of Drones using Real Time Kinematic-GPS (RTK-GPS):

The project was aimed at fixing the current problem with Unmanned Aerial Vehicle (UAV) autonomous landing. Current algorithms have an error of up to two meters in autonomous landing. Thus, it is not possible to have a precise landing for drones. The team used the technology of a RTK-GPS kit from SwiftNav – a company that specialises in manufacturing RTK-GPS kits with high-accuracy, to determine precise landing location of the drone. The result was a landing error of only a few centimeters, a stark contrast to the current algorithms. The team also made use of vision based algorithms to further ensure the precision of the landing. The applications of such an algorithm allows the team to be able to land the drones on moving targets, undulating terrain or on unstable surfaces such as water bodies.

Benedita Asarela Tanabi
Computer Engineering Year 4
MDP is a multi-faceted project which involves working with students from different cultural backgrounds and disciplines. The main goal of this project is to assemble the robot and go through different mazes (avoiding obstacles placed in the maze). Regular meetings helped the team bond and understand one another’s strengths and weaknesses. 4 components needed to come into synchronization for this project to be a success – namely Arduino (hardware), Algorithm (software), Raspberry Pi (Brain/Computer) and Android (tablet). We learned that leveraging on one another’s strengths and helping one another solve problems, as well as constant collaboration as a team was the key to our success.

The satisfaction of seeing the robot surpass all the challenges cannot be expressed in words. We were ecstatic as we managed to maintain near top position among our peers who gave a very tough competition. All the hard work and efforts placed into this project was well rewarded, and the team takes away valuable experiences from the MDP.
DISTINCTIVE LEARNING

NTU offers comprehensive global education opportunities with other top-notch universities including Massachusetts Institute of Technology (MIT), Stanford University, Waseda University, Tokyo University, Peking University, Fudan University, Indian Institutes of Technology Delhi and Cornell University.

At SCSE, we nurture, empower and equip students with the knowledge and experience they need to take on the world. This means offering a myriad of programmes for a well-rounded education.

**Industry Preparation for Pre-Graduate (iPrep) Programme**

In collaboration with the Infocomm and Media Development Authority (IMDA), SCSE now offers the Industry Preparation for Pre-Graduate (iPrep) programme to its students. Supported by IMDA and its many partners, this multi-faceted programme aims to give undergraduates the opportunity to sharpen their skills through a variety of activities that seek to complement a classroom-based learning experience.

**GEM Explorer**

NTU offers an array of Global Programmes for both incoming international exchange students as well as outgoing students. These programmes provide an opportunity for students to develop global perspectives and connect with people of diverse cultures to broaden their learning experience.

**GEM Discoverer - NTU Work and Study**

Designed to enhance the learning experience at NTU, the 20-week programme provides students the experience of studying and working abroad. Students are able to enhance their resumes with the opportunity to intern at multinational companies, leading companies and start-up ventures in well-known high technology parks. In addition, students can build a global network by spending a semester abroad.

**Overseas Entrepreneurship Programmes**

NTU continues to enhance the opportunities for our students by offering the option to combine a 1-year internship in a start-up company while studying at a prestigious partner university.
CAREER PROSPECTS

Our industry-ready graduates are equipped with a strong foundation in the disciplines of computer engineering and computer science. As a result, they are well prepared to use their skills to harness technology and continually work towards making breakthroughs that enable people to communicate more seamlessly, manage their environments more effectively and lead more comfortable lives.

No matter which industry they are in, graduates of SCSE are able to provide innovative solutions.

Graduates of CE, CS and DSAI are employed in companies such as:
- Accenture Pte Ltd
- Adobe
- Apple Inc.
- Agilent Technologies Singapore Pte Ltd
- Bank of America
- Boeing
- Borland Singapore
- Centre for Strategic Infocomm Technologies
- A*STAR Science and Engineering Research Council
- Continental
- Creative Technology
- Credit Suisse
- Crimson Logic Pte Ltd
- DBS Bank Ltd
- Defence Science and Technology Agency
- DSO National Laboratories
- ESPN Star Sports
- Yokogawa Singapore
- ExxonMobil Asia Pacific Pte Ltd
- Facebook
- Google Inc.
- Hewlett-Packard Singapore (Pte) Ltd
- IBM
- Intel
- Linkedin
- Merrill Lynch
- Microsoft Corporation
- NexLabs Pte Ltd
- NOKIA Pte Ltd
- PayPal International
- PSA Corporation Ltd
- PricewaterhouseCoopers
- Rakuten Marketing
- SAP Asia Pte Ltd
- Samsung Asia Pte Ltd
- Singapore Airlines
- SingTel Ltd
- Singapore Technologies group of companies
- Standard Chartered Bank
- Uber
- Ubisoft Singapore Studio
- United Overseas Bank Limited Co.
- VISA
- and many more
At START, I interned as a back-end software developer specializing in PHP and MySQL. However, the only prior experience I had with these languages was from the ‘Net-centric computing’ module that I took in the School of Computer Science and Engineering. But my mentor was really understanding and helpful. For my exchange at Tsinghua University, I studied Machine Learning and Artificial Intelligence. The lessons are conducted in a mixture of English and Mandarin. It was an honor to be learning alongside China’s best students. The students at Tsinghua taught me to treasure the opportunity I was given to learn at a world-class institution. The experience reminded me to be grateful for the abundance of academic resources that is available to me in NTU.

“Having been on the Overseas Entrepreneurship Programme (OEP) by NTUitive, it has broadened my perspective of the world in three areas. Being exposed to an overseas working culture, experiencing the fast-paced changes of a startup and soaking in the culture San Francisco had to offer.

“
Alfie Farhana Binte Mohamed  
Computer Science, Year 4

I graduated from Singapore Polytechnic with a Diploma in Digital Media prior to joining the School of Computer Science and Engineering in NTU. The best part of my NTU journey was applying the theoretical and practical knowledge gained from the modules in Computer Science into my internship at Hewlett Packard Enterprise.

Melvyn Koh  
Computer Engineering, Year 4

My internship in Shanghai (China) gave me the opportunity to experience the fast-paced working environment. It was undoubtedly an enriching learning journey. I had a great opportunity of undertaking a 20-week overseas internship in Shanghai. It provided me with many opportunities to develop both my soft skills and technical competencies.
Pang Yu Shao
Computer Science, Year 3

Staying in Japan alone for two months allowed me to gain many experiences, not just in work but also the unique way of life and culture. Be it in school or at a workplace, there will be many instances where we would have to work with someone who comes from a difference culture and such experiences will come in handy. Therefore, going for an overseas exchange or internship would definitely help in further development of technical skills while also developing soft skills such as adaptability in working with others.

Prabhjot Vicky Grewal
Computer Science, Class of 2018

I am glad the school has an exhaustive list of partnered companies which students can choose for their professional internship. My intern experience with the Bank of America Merrill Lynch really helped me to understand how the technological department of a major MNC operates. In addition to career opportunities, the provision of lecture recordings gave students the flexibility to pursue their passions out of the classroom without it affecting their academic learning.
My first local exchange experience was at the Singapore Management University (SMU). There are some advantages of a local exchange over that of an overseas exchange. Firstly there are no language barriers. Next, the application procedures are not as much of a hassle (no requirement of visa / passport paperwork). The course matching is also easily done within a short time period. Finally, best of all, I get to meet my friends who are in SMU. Locating in town, SMU is easily accessible. However, going to classes during peak hours can be a pain. The learning culture in SMU is very different compared to NTU. They emphasized a lot on class participation. Since all lectures were conducted in seminar rooms accommodating up to 50 students, it helped the students to exercise prompt critical thinking and facilitate exchange of ideas unlike that of the vast lecture halls of NTU. It also helps to build up one’s confidence in public speaking. I had a culture shock as it was not something we encountered often in NTU, and this is really not something that I am good at. However, the friendly lecturers understood this difficulty of mine and did not stop them from giving me opportunities to express my views and opinions. Overall, it was definitely an enriching and enjoyable experience, I appreciate the opportunity given to me by NTU as well as the support from the coordinating staff for making this possible.
Germany is a very charming country filled with historical architectures and palaces. The country also has a very rich art culture and delicious cuisines, making the trip a vastly enriching one. I made new friends from five different continents and have grown more independent and open-minded now and it was all thanks to this summer studies.
It was my first time setting foot in New South Wales when I went for a 6-week exchange programme in the University of Sydney (Australia). I took a course called Designing Social Media, where I gained insights about the key features of social media design and developed a social media strategy for Osteoporosis Australia. It was a great time doing the course, as I could channel my creativity and interest in UI design.

Going for an overseas exchange program at McMaster University in Canada was definitely one of the best decisions I have made in my university life. While spending one semester in a foreign land seemed daunting with so many uncertainties, exactly through embracing the many unknowns that I found myself set on a journey with many enriching experiences. Looking back, the overseas exchange experience provided me with various new opportunities.
OUR GRADUATES AND SUCCESS STORIES

Adrian Chye
Co-Founder, Mediafreaks Group of Companies.
(Class of 2004)

Budhadipta Bhattacharya
Founder, WAYV Digital
(Class of 2013)

Ngo Chee Yong
Co-Founder and CTO, Swag Soft LLP
(Class of 2005)

Stanwin Siow
Co-Founder and Principal Consultant for The Confident Way
Director at Dathena Science Pte Ltd
(Class of 2012)
OUR GRADUATES AND SUCCESS STORIES

Jonathan Samraj
Infocomm Development Authority of Singapore
Telecom Cyber Security Cluster
(Class of 2014)

Russell Loh Weibin
J.P. Morgan
Technology Analyst
(Class of 2018)

Jolene Lim
RSA
Technology Consultant
(Class of 2014)

Pamela Lim Jiah Min
Senior Associate Technology Consultant
PricewaterhouseCoopers Consulting (Singapore)
(Class of 2015)
OUR GRADUATES AND SUCCESS STORIES

Deepank Vora
PayPal
Software Engineer
(Class of 2014)

Loh Jia Wen, Doreen
Presales Specialist - Asia Pacific and Japan
SAP ASIA
(Class of 2014)

Anooshka Chivukula
VISA
Senior Software Engineer
(Class of 2014)

Nim Jin Xiang
Analyst
J.P. Morgan Chase & Co
(Class of 2014)
SCSE challenged me in great ways to explore different options that in turn helped me find what I wanted to do in life. SCSE built the right foundation for the entrepreneur in me that taught me key lessons and skill-sets which helped me immensely in my journey after graduation. The School offered me a great platform to try and test all my hypothesis paving the way for my entrepreneurial journey.

Chinmay Malaviya
Co-Founder and Advisor
Food Panda (Global)
(Class of 2012)

I would say that part of my achievements can be attributed to the engineering training that I have received from SCSE. Logical thinking and reasoning are important in my line of work. I’ve learnt to always question myself in whatever I do; to find out if this is the best way or is there a better way of achieving the desired results.

Marcus Cheng
Founder & Director of ACCLIVIS Technologies
(Class of 2005)
Read more about Marcus, http://www.hey.ntu.edu.sg/04_features_feat2a.html

Earned 15m in the first year of set up. Millionaire at age 32
The School has been very supportive of students’ research. We were always given a lot of leeway to experiment and discuss our ideas. That helped a lot when I went into Google as I was very comfortable sharing my ideas with my colleagues and we had no qualms about trying out new things, just like in school.

**Tan Chade-Meng**  
Google’s Jolly Good Fellow  
(Class of 1995)  
[Read more about Chade Meng](http://www.chademeng.com/meng_bio.html)

Jumei International Holding, one of China’s largest online cosmetics retailers was co-founded by Leo Chen. The organisation was listed at the New York Stock Exchange in May 2014 which catapulted Leo to join the ranks of billionaires in Asia overnight. Before co-founding Jumei, Leo had set up an online game business and was a member of the “30 Under 30” lists of notable entrepreneurs under the age of 30 in China published in 2012 and 2013 by Forbes China.

**Leo Chen**  
Chairman and CEO  
Jumei International Holding  
(Class of 2005)
NTU’s Computer Science Ranks 1st in Asia and 2nd Globally

US News & World Report’s Best Global Universities Rankings

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Reg. No 2000604393R
Information is correct at the time of printing 12/18