PROGRAMME ENQUIRIES
School of Chemical and Biomedical Engineering
Nanyang Technological University
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ADMISSION ENQUIRIES
Office of Admissions and Financial Aid
Nanyang Technological University
Student Services Centre, Level 3
42 Nanyang Avenue
Singapore 639815
Email: adm_local@ntu.edu.sg (for local students)
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Website: http://admissions.ntu.edu.sg/UndergraduateAdmissions

Reg. No. 200604393R
Bachelor of Engineering (Bioengineering)

Bachelor of Engineering (Chemical & Biomolecular Engineering)

SCBE

School of Chemical and Biomedical Engineering
Advancing Sustainable Future through Chemical and Biomedical Innovation
INTRODUCTION

The School of Chemical and Biomedical Engineering (SCBE) at Nanyang Technological University Singapore (NTU Singapore), offers direct honours degree programmes in Chemical & Biomolecular Engineering and Bioengineering, to empower a new generation of engineers. The rigorous curriculum integrates principles of engineering with fundamentals of life and chemical sciences giving our graduates an edge in the economy.

With modern infrastructure, state-of-the-art research and teaching facilities as well as dynamic faculty from internationally renowned universities, the School provides a stimulating learning environment and opportunities for students to achieve personal and professional milestones.

“ADVANCING SUSTAINABLE FUTURE THROUGH CHEMICAL AND BIOMEDICAL INNOVATION”

DID YOU KNOW?

SCBE’s research team has found a new way to treat tumours by using bubbles to deliver drugs deep into cells. This targeted treatment prevents the drug from damaging healthy cells and thus increasing the effectiveness of the treatment.
WHY SCBE

Fresh graduates with one of the HIGHEST EMPLOYMENT RATE AND GROSS MONTHLY SALARY in Singapore

Offers DIRECT-HONOURS DEGREE programmes

RANKED 17TH in the world in the QS World University Rankings by Subject 2017

World RENOWNED PROFESSORS as mentor

WORK AND LEARN WITH THE BEST STUDENTS from Singapore and the region

GLOBAL IMMERSION PROGRAMME (GIP) – Opportunities for six-month stints in one or more of the following countries: China, India, France, Switzerland and USA

UNDERGRADUATE RESEARCH ON CAMPUS (URECA) PROGRAMME* - Opportunities for research attachment within NTU Singapore

*Students need to satisfy certain requirement to be eligible for these special programmes offered by NTU
PROGRAMMES OFFERED

CBE CHEMICAL & BIOMOLECULAR ENGINEERING PROGRAMMES

• B.Eng. (Hons) Chemical & Biomolecular Engineering

Related Programmes:

CBE with a Second Major in Business
• B.Eng. (Hons) Chemical & Biomolecular Engineering with 2nd Major in Business
• B.Eng. (Hons) Chemical & Biomolecular Engineering with 2nd Major in Business (Int’l Trading Programme)

CBE with Second Major in Food Science Technology
• B.Eng. (Hons) Chemical & Biomolecular Engineering with 2nd Major in Food, Science and Technology

Double Degree
• B.Eng. (Hons) in Chemical & Biomolecular Engineering & B.A. (Hons) in Economics

CN Yang
• B.Eng. (Hons) In Bioengineering

Related Programmes:

**BIE with a Second Major in Business**
- B.Eng. (Hons) In Bioengineering with 2nd Major in Business
- B.Eng. (Hons) in Bioengineering with 2nd Major in Business (Int’l Trading Programme)

**BIE with a Second Major in Food Science and Technology**
- B.Eng. (Hons) In Bioengineering with 2nd Major in Food, Science and Technology

**BIE with a Second Major in Pharmaceutical Engineering**
- B.Eng. (Hons) In Bioengineering with 2nd Major in Pharmaceutical Engineering

**Double Degree**
- B.Eng. (Hons) in Bioengineering & B.A. (Hons) in Economics

CN Yang
ADMISSION REQUIREMENTS

In addition to satisfying the General Entry Requirements of NTU Singapore, candidates must have a minimum of:

• H2 level (or equivalent) pass in Mathematics, and
• H2 level (or equivalent) pass in physics/chemistry/biology/computing, and
• H1 level/GCE ‘O’ Level pass in physics* (or equivalent).

Candidates with relevant diplomas from local polytechnics may apply for admission. Other eligible candidates may be admitted into the first year with exemption of courses granted on a case-by-case basis. Only applicable to candidates who are applying for admission in Academic Year 2012/13 and onwards.

“MODERN CHEMICAL AND BIOMOLECULAR ENGINEERING IS FOCUSED ON PIONEERING VALUABLE NEW MATERIALS AND TECHNIQUES.”

Chemical and biomolecular engineering is the branch of engineering that deals with the application of physical science (e.g., chemistry and physics), and life sciences (e.g., biology, microbiology and biochemistry) with mathematics and economics, to the process of converting raw materials or chemicals into more valuable forms.

Besides producing useful materials, modern chemical and biomolecular engineering is also focused on pioneering valuable new materials and techniques — such as nanotechnology, fuel cells and biomedical engineering.

The Chemical and Biomolecular Engineering programme at NTU Singapore aims to equip a new generation of chemical and biomolecular engineering graduates with the skills to meet the challenges of the chemical and biomedical sciences industries in Singapore and the world. Our accredited** undergraduate programme incorporates biomolecular engineering and physical sciences with chemical engineering principles.

Since our establishment in 2004, we have attracted the best students from Singapore and the region. Our fresh graduates have achieved one of the highest employment rates and gross monthly salary among graduates from similar fields.

Our young Chemical Engineering programme is ranked 17th globally in the QS World University Rankings by Subject (2017). Our faculty staff from around the world are conducting vibrant interdisciplinary research in fields such as nanotechnology and catalysis, cellular and molecular engineering, bioproduct engineering.

The School offers a four-year direct honours undergraduate degree programme in Chemical and Biomolecular Engineering (CBE). Students are empowered to solve challenging problems in chemical & biomolecular engineering and its related areas and better understand the implications of these solutions on society.

* An ‘O’ level pass in physics is only applicable to candidates without H2 level pass in physics.

**The degree programme in Chemical and Biomolecular Engineering is accredited by the Engineering Accreditation Board (EAB) of the Institution of Engineers Singapore (IES).
The CBE curriculum combines principles of chemical engineering and life sciences (biology, biochemistry and genetics) to facilitate the development of safe, profitable and environment friendly processes for the synthesis and manufacture of products from chemical/biological raw materials.
CAREER PROSPECT

- Manufacturing industries
- Research and development in:
  - Bio-pharmaceuticals related fields
  - Specialty chemicals
  - Food/flavours/fragrances
  - Nanotechnology
  - Petrochemicals industries
  - Oil and gas sectors
- Trading and finance related jobs in relevant industries
ADMISSION REQUIREMENTS

In addition to satisfying the General Entry Requirements of NTU Singapore, candidates must have a minimum of:

- H2 level (or equivalent) pass in Mathematics, and
- H2 level (or equivalent) pass in physics/chemistry/biology/computing, and
- H1 level/GCE ‘O’ Level pass in physics* (or equivalent).

Candidates with relevant diplomas from local polytechnics may apply for admission. Other eligible candidates may be admitted into the first year with exemption of courses granted on a case-by-case basis. Only applicable to candidates who are applying for admission in Academic Year 2012/13 and onwards.

Bioengineering seamlessly fuses the various disciplines of engineering and biomedical science. Both fields are complementary, as core technologies from engineering are also applied in several biomedical science areas. In fact, biomedical science has led engineering to progress into areas such as biomedical imaging, biomedical instrumentation, biomaterials and tissue engineering, which fall under the field of “Bioengineering”. A bioengineer applies fundamental principles and methods of engineering to address problems in medical and life sciences.

The Bioengineering programme at SCBE empowers students to solve challenging problems in bioengineering and its related areas and better understand the implications of these solutions on society. The School offers a four-year direct honours undergraduate degree programme in Bioengineering (BIE). The accredited** programme blends modern biological principles with advanced engineering methods in electronics, materials, mechanics and computing to develop the best engineers for biomedical and biotechnology industries as well as healthcare and clinical services.

The curriculum aims to meet the needs of the biomedical industry in Singapore and better prepare our graduates for immediate employment in the healthcare industry. We concentrate on applying knowledge to innovations in healthcare with a focus on entrepreneurship.

In modules such as Design Project and Management, we introduce a Medical Device Design tailored to look specifically into design aspects of medical devices. We have also introduced labs sessions such as bioimaging, so that students can have hands-on experiences. Our commitment to our students ensures that we continuously evolve by providing a balanced, in-depth programme through free electives, which will better prepare our graduates for the rigorous demands of today’s bioengineering industry.

* An ‘O’ level pass in physics is only applicable to candidates without H2 level pass in physics.

**The degree programme in Bioengineering is accredited by the Engineering Accreditation Board (EAB) of the Institution of Engineers Singapore (IES).
The BIE curriculum blends modern biological principles with advanced engineering methods in electronics, materials, mechanics, biocomputing and informatics to train high standard engineers for biomedical and biotechnology industries as well as healthcare and clinical services.
CAREER PROSPECT

- Manufacturing industries
- Pharmaceutical industries
- Career in research institutes
- Opportunity to work in hospitals
- Opportunities to work in organisations that deal with biomedical instrumentation, medical devices, biomaterials, drug discoveries and other related industries
- Trading and finance related jobs in relevant industries
Joining Overseas Community Involvement Programme (OCIP) was one of the most enriching and meaningful events of my life in university. Through OCIP, I manage to gain many valuable lessons and make many new friends. It gave me the opportunity to lead a team overseas which made me step out of my comfort zone, learning how to better react and deal with stressful situation and allowed me to better understand myself as person. I also managed to experience their culture and way of life. This trip made me realise again how fortunate we are in Singapore and not to take things for granted. It was certainly a very memorable and enriching experience.

Ang Jun Wei  
Chemical and Biomolecular Engineering, Year 3

Apart from striving for academic success, the life of a student in the School of Chemical and Biomedical Engineering (SCBE) is vibrant and exciting. To me, interacting with people and being a part of their student journey has always been my key passion. Which is why I have taken up the role as a peer tutor in SCBE. When you become a tutor, you take an active part in a student’s life. And because it’s one-on-one, you provide them with a safe learning environment. There’s no competition with other students or the pressure of being surrounded by one’s peers.

Lay Huang Teik  
Chemical and Biomolecular Engineering, Year 4
In one of my best moment in NTU is embarking on an exchange semester at Tampere University of Technology in Finland. This trip has enriched my student journey and broaden my horizon. I got the chance to experience different teaching methods and to work with students of different cultures and backgrounds. The exposure also further developed my interpersonal skill. Through the exchange, I am a more independent global citizen.

There is a good balance of study and fun. During the weekends and holidays, my friends and I took some time off to visit different places of interest and immerse ourselves in the local custom and cuisine. I am grateful for the opportunity that SCBE had given me to learn and develop beyond the classrooms of NTU.

Khong Wai Kit
BioEngineering, Year 4
UNIVERSITY SCHOLARS AND LEADERS SYMPOSIUM 2017 (BANGKOK)

In August 2017, I was given the opportunity to represent Singapore as a delegate for the University Scholars and Leaders Symposium held at United Nations, Bangkok.

Through the symposium, I was allowed to interact with over 900 delegates from over 60 countries! I had also met people who have faced pressing social issues today such as refugee crisis, war, poverty and human trafficking. It was really eye opening to hear about their dreams for a better world, and makes me wonder what I could do to help.

The highlight of the symposium was definitely the inspiring speeches given by social workers with vast experiences. The story that resonated with me most was a story about a boy named Noodles, a 6-month-old baby who was abandoned, and had his eye sockets emptied by his care takers to harvest them for the organ black market. What broke my heart was this was not unusual in Cambodia, and is something that is probably ongoing. It was so painful to hear such stories and reminds us to constantly dream of a better world and not be satisfied of where we are currently at.

Overall, I am thankful and humbled to be given this opportunity to attend this symposium. I am definitely more motivated to serve the world, especially those that need it most. I learnt that a little can go a long way to make such a big difference. Start helping the community through small gestures, and work your way up. Finally, the key take home message was that we should not be defined by nationality, age or race. We are all part of humanity and we should all help one another.

Tan Hui Qi Ranice
Chemical and Biomolecular Engineering, Year 4
EVELYN LEO
Manager, GTO Pharm South
MSD Singapore

MSD is on the constant lookout to hire talented people and some of our previous interns are now full time employees with us. We have 5 manufacturing facilities in Singapore which encompasses manufacturing of drug substance, drug product, inhalation product and biologics. We hire graduates and take in interns each year from NTU School of Chemical and Biomedical Engineering (SCBE). NTU students have the aptitude and show a positive attitude towards learning on the job. Therefore, we look forward to having more NTU SCBE students, especially interns, in MSD.
HOW ARE OUR ALUMNI DOING

ALAN GOH HAW KEONG

Being the pioneer batch of students for SCBE, there were many firsts for us as a newly formed school within the establishment. From our first orientation camp to our first inter faculty games to the first batch of graduating students and lastly our first alumni gathering just to name a few. However all these wasn’t possible without the dedicated and supportive team at SCBE who are determined to give us the best to help us excel both in and out of school.

Looking back, I had definitely benefited from the rigorous program in SCBE in terms of both broadening my knowledge in the field of chemical engineering as well as honing my ability to tackle real world problems. I believe am not the only one as I can easily find my fellow classmates embarking on various successes of their own.

With the emphasis on a holistic education, I am confident that all prospective SCBE graduates will obtain the requisite knowledge and skills to embark on a fulfilling life journey.

I HAD DEFINITELY BENEFITED FROM THE RIGOROUS PROGRAM IN SCBE IN TERMS OF BOTH BROADENING MY KNOWLEDGE IN THE FIELD OF CHEMICAL ENGINEERING AS WELL AS HONING MY ABILITY TO TACKLE REAL WORLD PROBLEMS.
LIU ZHENGYI

Life in NTU and SCBE was certainly one of the highs of my educational life. I fondly remember being part of the committee for SCBE’s FOC, which gave me the chance to work with people from all walks of life and widen my social circle.

2013 was one of my toughest years in school; juggling a heavy academic workload and my responsibilities as the Chairman of SCBE FOC 2014. However, skills such as leadership and time management learnt then have helped me tremendously in my job interviews. Employers are generally more interested in how you have contributed to the school and the community during your uni days. Therefore, having good grades alone without these personal development experiences may not be sufficient to secure a job.

I was very fortunate to be recruited by ExxonMobil before graduation and a word of advice to my juniors: Be open to all employment opportunities and prepare well for every single interview. For now, work hard and play hard!

JOAN YANG XIAOHUI

Choosing to study in SCBE was a crucial step towards building my career in research. With passionate professors and lecturers, as well as through career opportunities like Industrial Attachment, I was able to broaden my fundamental knowledge of bioengineering that is the link between the medical and the engineering fields. I also had plenty of opportunity to mingle and interact with peers from both CBE and BIE during our SCBE freshman orientation camp and in the SCBE club.

SCBE boasts of a holistic curriculum that helps shape the minds of bioengineers, preparing us for the careers before us. Be it a profession in the industries or a career in academia, be assured that SCBE would be able to provide the necessary learning platform to help build up your repertoire of knowledge and experience in preparation for your career.