



ENGINEERING

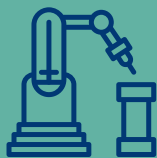
INNOVATION FOR GLOBAL IMPACT

WORLD RANKINGS OF HKUST SCHOOL OF ENGINEERING



IN HONG KONG

No.
26



In the World in the area of Engineering

Times Higher Education World University Rankings, 2023

Times Higher Education World University Rankings, 2023
QS World University Rankings, 2023



World No.

28

**Civil & Structural
Engineering**



World No.

73

**Chemical
Engineering**
(No.1 in Hong Kong)



World No.

40

**Computer Science &
Information Systems**
(No.1 in Hong Kong)



World No.

47



**Mechanical, Aeronautical &
Manufacturing Engineering**
(No.1 in Hong Kong)



World No.

36

**Electrical &
Electronic Engineering**
(No.1 in Hong Kong)



World No.

46

**Statistics and
Operational Research**
(No.1 in Hong Kong)

WHY HKUST ENGINEERING?



World-Class Education

Our young, forward looking university with one of the best schools of Engineering in the world has established high global rankings. You will learn from professors with PhD degrees from first-class universities around the globe, who closely follow pedagogical developments to increase their teaching effectiveness. We have achieved leadership in teaching in both established and emerging engineering fields with our student-centric approach, whole-person development and active career guidance. The School of Engineering (SENG) is globally renowned for its research excellence.



International Professional Recognition

Our high standards are acknowledged by a range of local and international official professional recognitions. Our programs are not only accredited by the Hong Kong Institution of Engineers, they are also officially recognized by more than 20 countries, which are members of the Washington Accord. These include Australia, Canada, Korea, Malaysia, Singapore, New Zealand, the UK, the US and others.

Programs related to IT and computing are recognized under the Seoul Accord, with signatories including Australia, Canada, Japan, Korea, the UK and the US.

Widely recognized, HKUST engineering degrees open up a spectrum of international job and career prospects.

360°

GLOBAL LEARNING EXPERIENCES

Step out of the classroom and widen your horizon with a multitude of global learning offerings.

Overseas Exchange

Be one of our engineering students who spend a term outside of Hong Kong. Study overseas at one of the 120+ host institutions, while only paying the normative HKUST tuition fee.

Study Abroad

Choose from the wide range of study abroad programs available through HKUST's extensive collaborative network. Discounts and scholarships are available on some programs.

International Research

Join an international research team at a top-notch research university or join hands with students from a world-class University on an engineering design project.

Global Virtual Exchange

Gain global insight by joining credit-bearing virtual courses offered by top universities around the globe through the HKUST's network.





Kristhalia HADI

BEng (Chemical and Environmental Engineering) Student
University of California, Berkeley (USA)

Exchange is about experiencing other education and culture. I am forever grateful of the things I learned and the friends I made.

EUROPE

ASIA
PACIFIC

To

20+

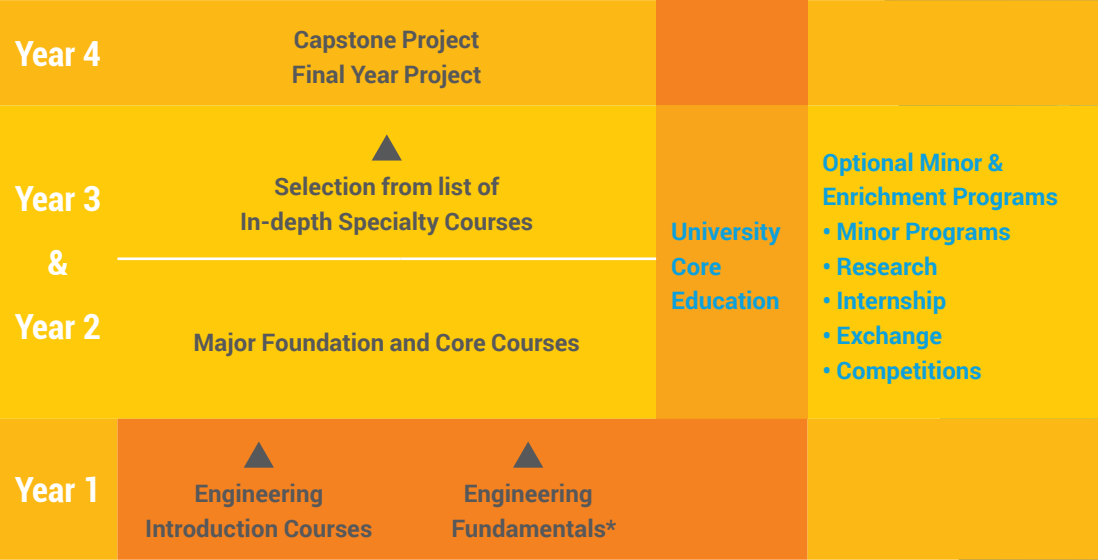
Countries / Regions

120+

Exchange
Partners

INSPIRING PROGRAMS

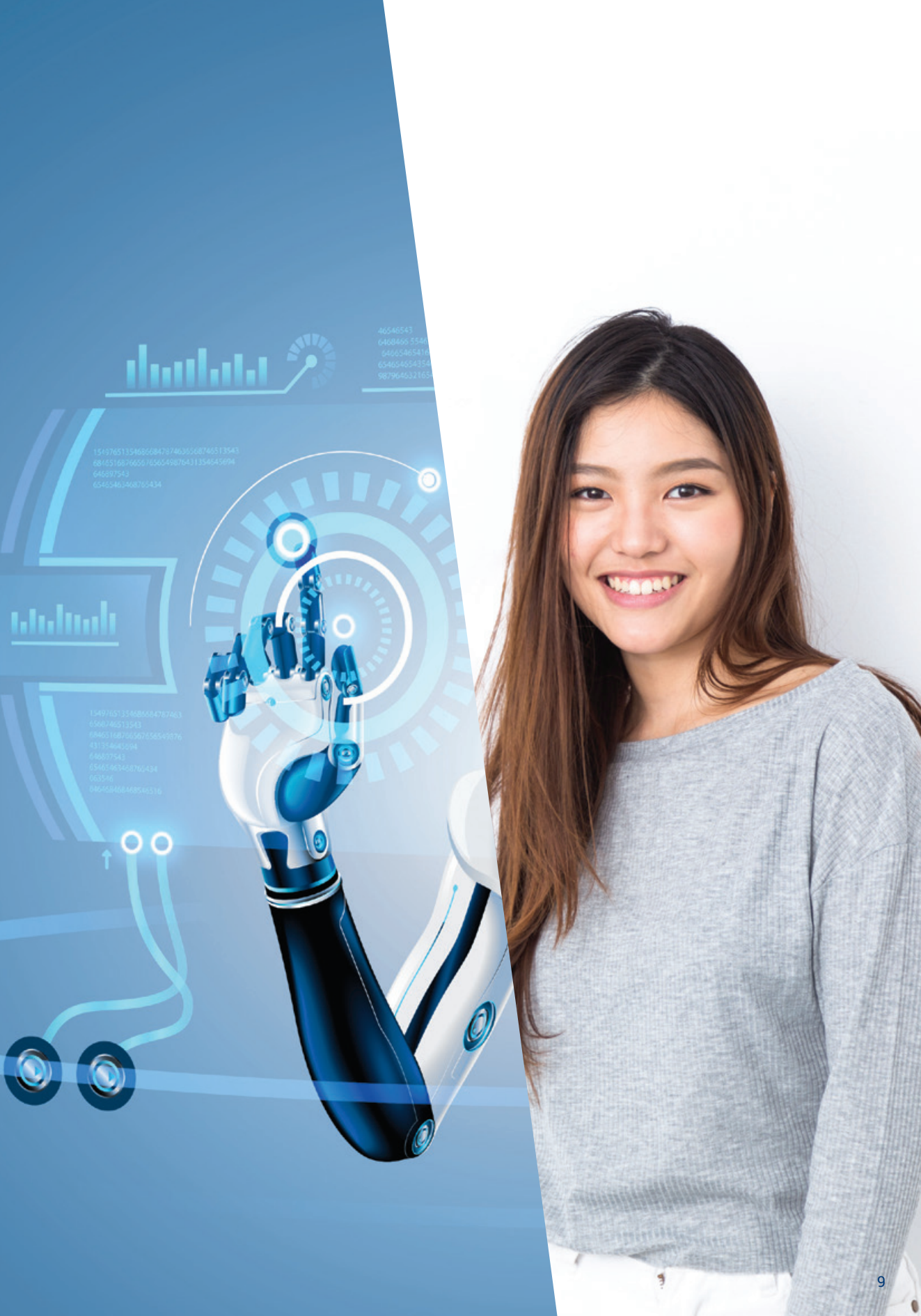
The Engineering Curriculum



* Mathematics, Science, Computing, Technical Communication

In the four-year undergraduate program, students are admitted to SENG first. In the first year, you learn the fundamentals of engineering and explore various engineering disciplines through introduction courses. At the end of the first year, you will make an informed choice of the discipline you will be studying at SENG for the next three years.

The broad-based, student-centered program allows you to take up additional major or minor programs or dual degree programs involving both engineering and non-engineering areas. Students with substantial credit transfer upon admission may be able to graduate in less than four years.



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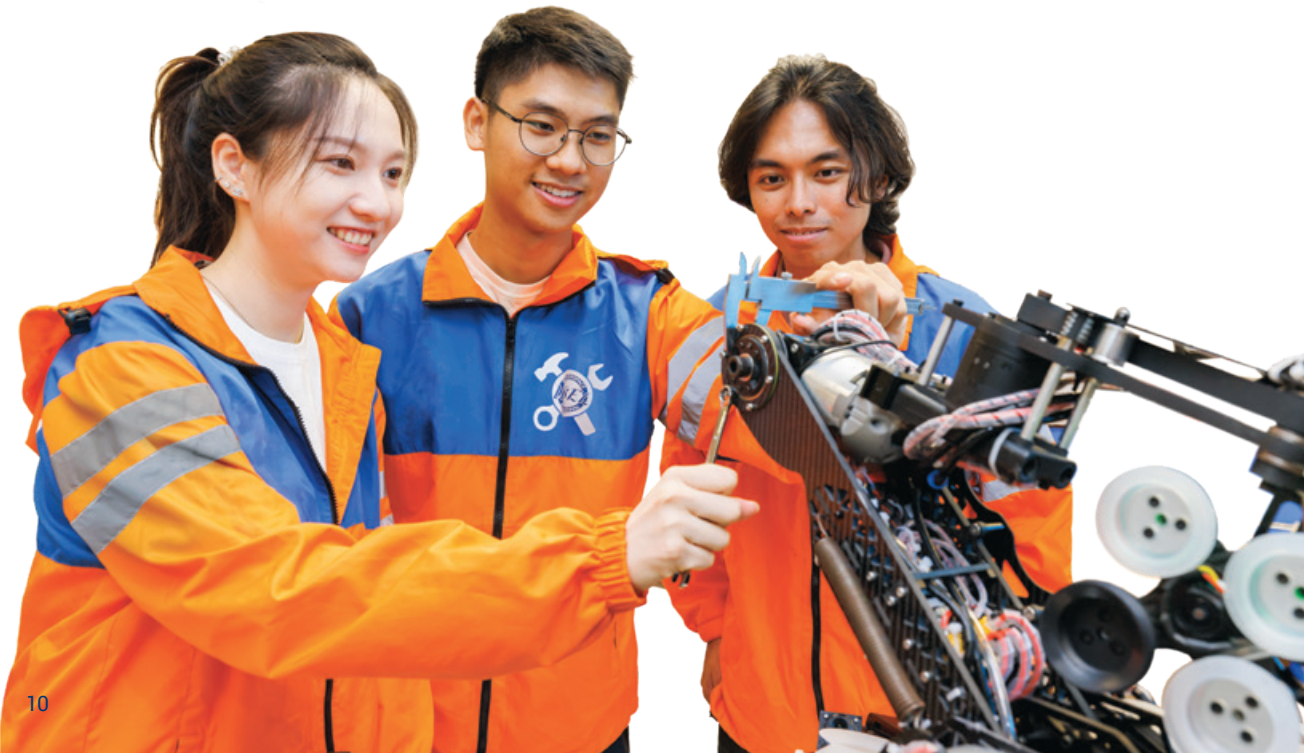
Major Programs

Choose from a wide spectrum of world-class engineering programs after the first year at Hong Kong's No.1 School of Engineering.

- BEng in Aerospace Engineering#
- BEng in Bioengineering
- BEng in Chemical Engineering
- BEng in Chemical and Environmental Engineering
- BEng in Civil Engineering#
- BEng in Civil and Environmental Engineering#
- BEng in Computer Engineering#
- BEng/BSc in Computer Science#
- BEng in Decision Analytics#
- BEng in Electronic Engineering#
- BEng in Industrial Engineering and Engineering Management#
- BEng in Mechanical Engineering#
- BEng in Sustainable Energy Engineering

All the above majors can be completed with an Extended Major in **Artificial Intelligence**.

Can also be completed with an Extended Major in **Digital Media and Creative Arts**. (More details on p.25)





Interdisciplinary Major Programs

Widen your career options! After the first year at SENG, you can also select a cutting-edge interdisciplinary major covering business management, data science, the environment or risk management.

- Dual Degree Program (BEng and BBA) in Technology and Management
- BSc in Data Science and Technology
- BSc in Environmental Management and Technology
- BSc in Individualized Interdisciplinary Major
- BSc in Integrative Systems and Design
- BSc in Risk Management and Business Intelligence

Minor Programs

You can enrich your learning experience by taking up one or more insightful minor programs, such as the ones listed below.

- Actuarial Mathematics
- Aeronautical Engineering
- Big Data Technology
- Business
- Design
- Entrepreneurship
- Robotics
- Smart City

The list is by no means exhaustive

Check it out from HKUST's website!



Cindy TANAKA

2022 BEng (Chemical and Environmental Engineering)
Analyst, Sustainability & Climate Risk Advisory, Deloitte

In my four years studying at HKUST School of Engineering, I was constantly exposed to the many ways that the engineering field can make a positive impact on the world. I learned about the pressing issue of climate change in one of my Chemical and Environmental Engineering classes. Since then, I continued to explore and learn about the topic by not only taking related classes but also joining events and gaining external experience through internships.

Being an engineer taught me that there is something new to learn every day as the world rapidly progresses. At HKUST, I obtained my technical and analytical capabilities, strengthened my interpersonal skills, and pursued my interests, and this journey led me to where I am today, where I am proud to be able to contribute to society as a sustainability and climate change consultant, helping businesses in their low-carbon transition to leave a healthy planet for generations to come.

WHAT IS ENGINEERING?

Are you a problem solver who likes to make things work more efficiently and effectively? Then engineering, which uses scientific, mathematical, economic, social and practical knowledge to solve problems in our daily lives, will interest you.

Engineering strives to improve our lives with great inventions, such as computers, satellites, medical devices, artificial intelligence and renewable energy technologies. Whether we live in a tall building or work in a skyscraper, take the MTR or use our mobile phone, invest our personal savings or make critical business decisions, now more than ever, we constantly enjoy the fruits of engineering in our daily lives. They are not only around us everywhere, but develop at an unprecedented speed led by incredible new discoveries and inventions.

BEng in AEROSPACE ENGINEERING

The Aerospace Engineering program places emphasis on green aviation and new flying vehicles. It aims at equipping graduates with understanding of the essential disciplines of aerodynamics, aircraft structures, flying vehicle dynamics and control, propulsion, material, aero elasticity and interdisciplinary design with a strong theoretical base which is well suited for careers in aerospace and related engineering fields.





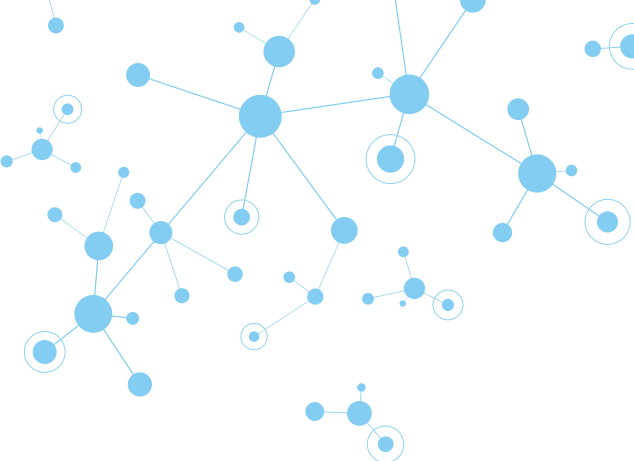
BEng in BIOENGINEERING

Bioengineering combines both engineering and the life sciences. Bioengineers use engineering principles and the power of biology to tackle medical challenges and improve human health, as well as a wide range of issues, ranging from energy shortage, food and water security, environmental pollution, and an ageing population. The program includes a foundation of mathematics and sciences specially designed for bioengineers and two areas of specialization (data-oriented, and molecular-oriented). Graduates will find employment as bioengineering innovators, researchers, clinical scientists, and entrepreneurs.

BEng in CHEMICAL ENGINEERING

Chemical Engineering is a discipline in which the principles of physical, chemical and natural sciences are used to solve applied chemistry related problems in manufacturing processes and plants. Students learn to design a manufacturing plant; transform raw materials into valuable products; purify the products to meet consumer demands; ensure high quality standard; automate the plant to make production safe and economical; minimize waste and pollution; market and sell the products at a profit; and work effectively with chemical engineering equipment.





BEng in CHEMICAL AND ENVIRONMENTAL ENGINEERING

This program emphasizes processes that turn raw materials into valuable products without producing effluents and wastes. All companies handling such processes need environmental engineers with a basic knowledge of chemical engineering to design, control, manage and operate environmental treatment facilities. This combined degree enables students to understand various industrial processes and realize where environmental control measures can be implemented, thus making the community a better place to live in.



BEng in CIVIL ENGINEERING

Civil engineers play an important role in planning, construction, maintenance and management of safe infrastructure to make our urban environment more adaptive to the ever-changing climate. Our BEng program covers a broad range of disciplines including structures and materials, geotechnical engineering, water resources, transportation and system sciences and environmental engineering, that provides students a holistic and balanced curriculum. We have gone beyond the traditional civil engineering to pioneer developments in smart cities, next-generation infrastructure, energy and the environment and aim at equipping students with solid knowledge of the physical sciences, intellectual aspiration and familiarity with the latest technologies such as AI needed to build infrastructure systems and maintain a safe, clean and sustainable environment.





BEng in CIVIL AND ENVIRONMENTAL ENGINEERING

Environmental quality is a major public concern all over the world. With the rapid economic development in Hong Kong and Asia at large, more and more resources are being committed to improving and managing our environment. Thus, there will be a great need for properly trained environmental engineers to develop smart and sustainable solutions. Our program provides broad engineering training with an emphasis on the areas of water and waste-water engineering, solid and hazardous waste management, and air/noise pollution control. Through traditional engineering and new emerging technologies, students are trained to find low-carbon and sustainable solutions for improving our built and natural environment.

BEng in COMPUTER ENGINEERING



Computer Engineering focuses on the analysis, design, implementation and utilization of computer systems, from embedded microprocessors, notebook/desktop computers to supercomputers, as well as how they are integrated with other systems to meet the challenges of real-world applications. It bridges the gap between computer science and electronic engineering, and offers students a balanced training on both hardware and software skills, by taking full advantages of the human resources and laboratory facilities of both Department of Electronic & Computer Engineering and Department of Computer Science & Engineering. It's a well-integrated 2-in-1 program!

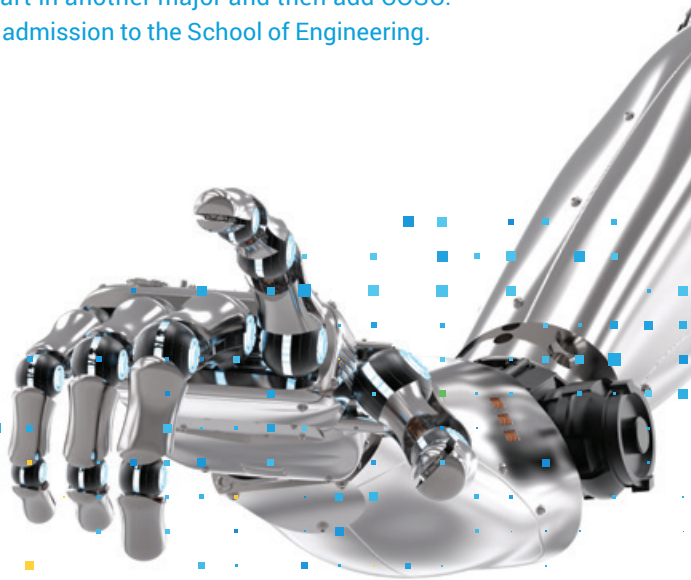
BEng in COMPUTER SCIENCE

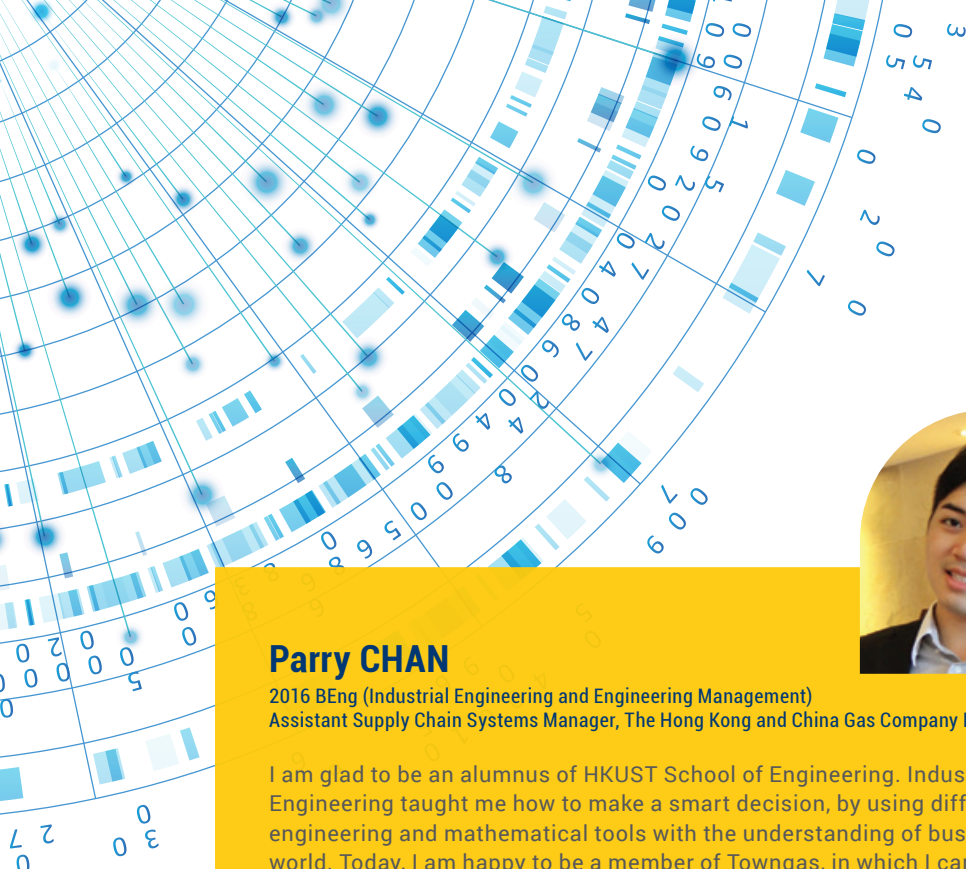
Computer Science studies the application of computers in solving important problems in scientific, engineering and commercial domains. Our BEng program provides a broad education, teaching problem solving skills to tackle computation problems in all core areas, including programming, data structures and algorithms, operating systems, and software engineering. Students can then choose to learn diverse areas of computer science, such as databases and data mining, networking, embedded systems, computer graphics, image processing, artificial intelligence, machine learning, computer vision, computer security, and theoretical computer science.



BSc in COMPUTER SCIENCE

BSc in Computer Science (COSC) is uniquely designed to be utilized as one half of a double-major declaration. Students enrolled in COSC are required to be simultaneously enrolled in at least one other major, e.g. Mathematics, Physics, Quantitative Finance, Quantitative Social Analysis, Biotechnology, etc. Students who wish to double-major can either start in Computer Science and declare their second major afterwards, or start in another major and then add COSC. In the former case, you should seek admission to the School of Engineering.





Parry CHAN

2016 BEng (Industrial Engineering and Engineering Management)
Assistant Supply Chain Systems Manager, The Hong Kong and China Gas Company Limited

I am glad to be an alumnus of HKUST School of Engineering. Industrial Engineering taught me how to make a smart decision, by using different engineering and mathematical tools with the understanding of business world. Today, I am happy to be a member of Towngas, in which I can contribute together with my colleagues in providing our customers with a safe, reliable supply of energy and the caring, competent and efficient service they expect, while working to preserve, protect and improve our environment.

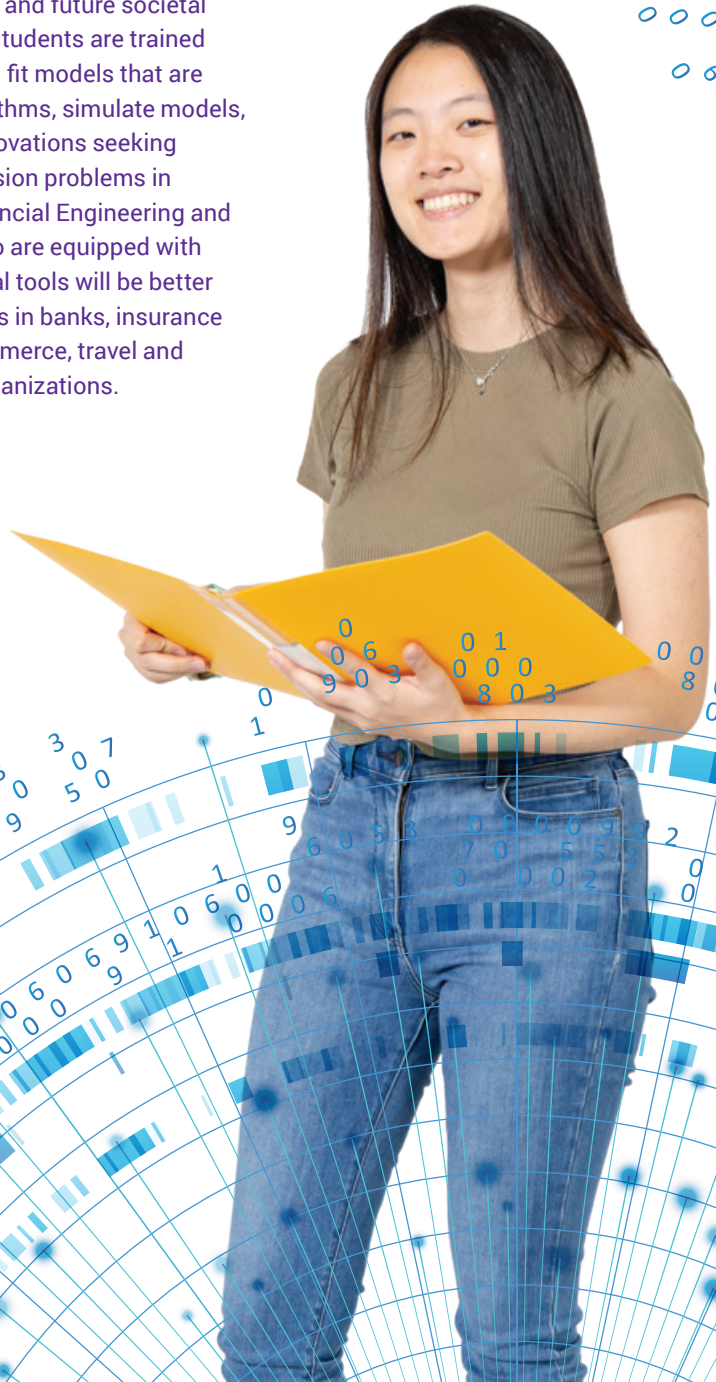
BSc in DATA SCIENCE AND TECHNOLOGY

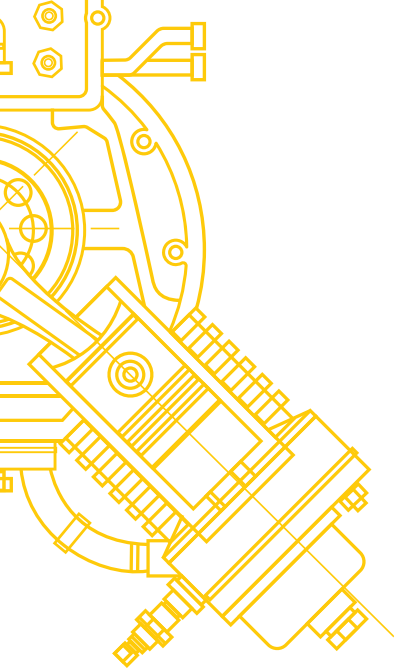
The Program equips students with various mathematical tools, data analytical skills and IT technologies to make sense of data obtained from various sources and to utilize them. For example, in industry, data science and technology would help to improve their productivity, whereas in commerce, it would serve as quick analytics to predict the stock price, design new investment tools, etc. Through four years of rigorous training, students are expected to be well versed with useful tools to deal with data such as data analytics, programming skills and mathematical modeling, all of which give students a solid foundation for their future career.

(Jointly offered by the Department of Mathematics and the Department of Computer Science and Engineering)

BEng in DECISION ANALYTICS

The major in Decision Analytics is designed to align the aspirations of students with current and future societal needs of the knowledge economy. Students are trained to analyze real-world data, build and fit models that are consistent with data, develop algorithms, simulate models, and design process and system innovations seeking optimal solutions to important decision problems in domain specific areas, such as Financial Engineering and Consulting Services. Graduates who are equipped with predictive and prescriptive analytical tools will be better able to source high value-added jobs in banks, insurance companies, consulting firms, e-commerce, travel and leisure industry, and health-care organizations.





BEng in ELECTRONIC ENGINEERING

Energy and information flow in electrical form, and electronic engineers develop technologies that have vastly improved our quality of life. The BEng in Electronic Engineering program covers technologies that found applications in artificial intelligence (AI), big data, robotics, internet of things, etc. These advanced technologies include signal and information processing, communications and networks, computer engineering and embedded system design, robotics and automation, microelectronics and integrated circuit design, photonics and optics, and biomedical electronics. These areas are critical to the growth of our information-based society and mastering them opens up vast career opportunities.

BEng in INDUSTRIAL ENGINEERING AND ENGINEERING MANAGEMENT

Industrial Engineering is the active and dynamic discipline of advanced scientific management – the engineering of making smart decisions. By adopting a decision analytics approach with the use of real-world data to drive decision models, graduates of this program are equipped with strong analytical skills as well as the ability to develop algorithms and simulation models for decision-making in domain specific knowledge of problems ranging from operations planning and scheduling to transportation systems and policies, and from global supply chain management to quality control.



BEng in MECHANICAL ENGINEERING

The program is structured in three stages. The first stage concentrates on the fundamentals of mechanical engineering. The second stage integrates engineering sciences with laboratory work and exposes students to state-of-the-art tools and equipment. The third stage comprises electives that provide students with sufficient depth in one of the following areas of specialization:

- (i) Building Services, Energy and Environmental Engineering
- (ii) Mechatronics, Design and Manufacturing
- (iii) Structure, Materials and Reliability Engineering



BEng in SUSTAINABLE ENERGY ENGINEERING

Sustainable Energy Engineering is an inter-disciplinary program covering energy generation, delivery, efficiency, conversion and storage, sustainability, and energy policy. It aims to develop leading professionals who can design and implement both traditional and renewable energy systems to respond to expanding global environmental and energy needs. This advanced training enables graduates to develop career in the government and companies in energy related fields.

ENGINEERING WITH AN EXTENDED MAJOR



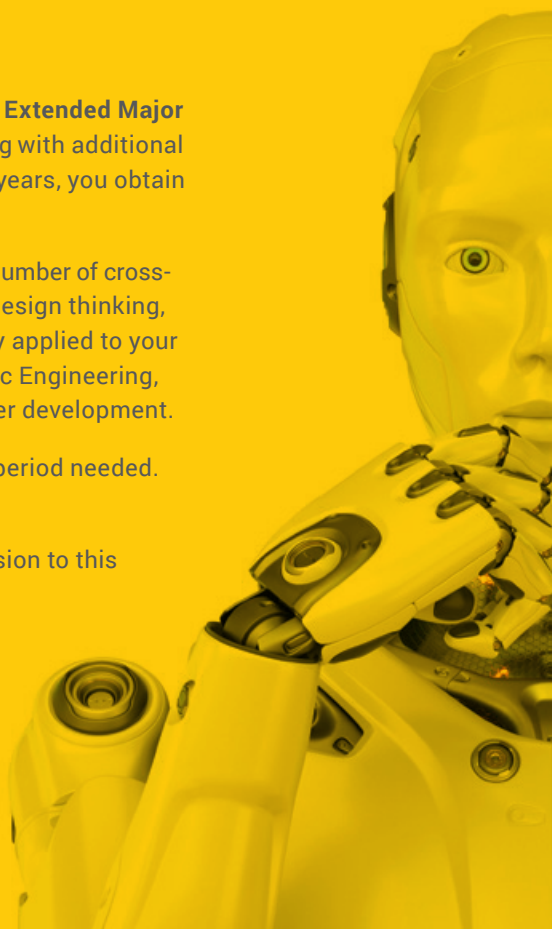
Artificial Intelligence

The first of its kind in Hong Kong, the **Engineering with an Extended Major in Artificial Intelligence** seeks to combine a degree in engineering with additional study in the hot area Artificial Intelligence (AI). Within 4 years, you obtain an engineering degree, PLUS knowledge in AI subjects.

Highly interdisciplinary in nature, the AI curriculum covers a number of cross-disciplinary components beyond technical skills, such as design thinking, ethics, etc. It's practical — the AI knowledge can be directly applied to your major engineering field such as Civil Engineering, Electronic Engineering, Mechanical Engineering, etc., and be an asset to your career development.

Just slightly overload in each term. No extension of study period needed.
No extra tuition fee.

Students with confirmed interest in AI can apply for admission to this program directly. (More details about admission on p.27)



Digital Media and Creative Arts

This new Extended Major seeks to equip students with technical skills that empower them to apply the latest computing and media technologies to the creation of digital media and arts, e.g. computer games, animation, wireless and mobile media, etc. Interested students should apply for admission to the School of Engineering.

At the end of their first year of study, they can apply for the **Extended Major in Digital Media and Creative Arts**, and embark on the program from Year 2.



ADMISSION REQUIREMENTS



For Local Applicants with HKDSE Results

- Engineering (School-based admission) JUPAS No.: JS5200
- Engineering with an Extended Major in Artificial Intelligence (School-based admission) JUPAS No.: JS5282

Applicants with Hong Kong Diploma of Secondary Education (HKDSE) results must meet

(i) General requirements, and (ii) School-specific Subject requirements*:

General requirements

4 CORES

Chinese Language	English Language	Maths. (Compulsory Module)	Citizenship & Social Development#
LEVEL 3	LEVEL 3	LEVEL 3	Attained

ELECTIVES

Elective 1*	Elective 2 or M1 / M2
LEVEL 3	LEVEL 3

Notes:

M1 : Mathematics Extended Module 1 (Calculus & Statistics)

M2 : Mathematics Extended Module 2 (Algebra & Calculus)

The result(s) of Liberal Studies (Level 2 or above) achieved in previous sitting(s) will also be considered.

School-specific Subject Requirements*

One of: Biology / Chemistry / Physics / Combined Science / ICT

For Applicants with International Qualifications

HKUST recognizes various international qualifications for admissions.

The following list shows some of the examples and is by no means exhaustive.

General Admission Requirements

1. American Patterned System (SAT/ACT+AP)
2. British Patterned System (GCEAL/IAL)
3. Canadian Curriculum
4. Indian Curriculum
5. Indonesian Curriculum
6. International Baccalaureate
7. Malaysian Curriculum (STPM or UEC)
8. Taiwan General Scholastic Ability Test (GSAT)

Others

Many more qualifications recognized by HKUST for admission can be found at <https://join.hkust.edu.hk/>

School-Specific Subject Requirements

Senior High School Mathematics **AND** One Senior High School subject from Physics, Chemistry, Biology, Computer Studies

(other relevant subjects may also be considered)

ENRICH YOUR LEARNING EXPERIENCE

Learning outside the classroom is an important part of education. At HKUST SENG you can participate in different co-curricular programs, which offer an inspiring whole-person education.

Local, National, and International Competitions

Participating in competitions is the best way for you to express your creativity and develop your problem-solving skills. In addition, you also learn teamwork, management and leadership skills, and enhance your communication and interpersonal skills. HKUST's engineering students are experienced and formidable competitors in robotics, underwater robots, smart cars and solar cars, powered wheelchairs and aeronautics, to mention but a few categories.





Student-driven Practicum Ignites Creativity

In our fast-changing world, creativity and problem-solving are the most important attributes a graduate can have. To nurture student's creativity, SENG established the Undergraduate Student-initiated Experiential Learning (USEL) program to all its undergraduates, encouraging them to initiate projects and carry them out under the guidance of faculty members. With the USEL lab that allows 24-hour access and the Fei Chi En Dream Team Open Lab, you will have plenty of space, facilities and equipment applicable to a wide range of disciplines to develop your creativity while realizing your dreams.

Matthew CHIU

2020 BEng (Electronic Engineering)
2022 MPhil (Electronic and Computer Engineering)
Graduate Engineer, MTR Corporation



The Department of Electronic and Computer Engineering offers an extensive range of disciplines, from wireless communication to microelectronics, granting me the freedom to navigate my own educational path and explore my passions within the field. This diverse coverage facilitates a deep understanding of various facets of electronic engineering. Furthermore, throughout my six years of study from bachelor's to master's, the department has consistently provided me with invaluable learning prospects, including hands-on projects, collaborative group learning experiences, and the opportunity to engage in teaching roles. These opportunities have not only nurtured my personal development but also honed my practical skills, preparing me for a promising career in the field.

Brian WU

2016 BEng (Computer Engineering)
Senior Cloud Engineer, HGC Global Communications Limited



HKUST's School of Engineering (SENG) offers a wide range of elective courses that can assist students in developing the practical skills and knowledge necessary to prepare for their first job. Taking advantage of these opportunities can be a great way to explore different areas and find your niche in the tech industry. During my study at HKUST, I also served in the committee of Computer Engineering Students' Society (CPEGSS). This experience helped me develop my communication and problem-solving skills, which have been invaluable in my profession. In summary, being an HKUST alumni has been a great privilege, and I'm grateful for the experiences and skills that I acquired while studying here.



Undergraduate Research Opportunities

The HKUST's signature Undergraduate Research Opportunities program (UROP) provides a unique opportunity for undergraduate students to engage in academic research under guidance and supervision by professors. A undergraduate research award is established to recognize outstanding projects.

Internship

Students' early exposure to professional work experience and learning about different industries is an important part of a whole-person education. At SENG, the Center for Industry Engagement and Internship serves as an interface between industry and the School to set up valuable internship engagements for students that help you identify your passion and interest in career choices and build your career path early, while still at university.



Peer Mentoring Guides Freshmen

Learning to Teach, Teaching to Learn

Our senior year engineering students are “Learning to Teach, Teaching to Learn”. Having gone through coaching in well-designed workshops, they provide peer mentoring support to freshmen. The Peer Mentoring Program helps senior students to reflect on their experiences and convert them to useful advice and guidance to freshmen, assisting them in their transition to university life.



Chloe YIP

2020 BEng (Mechanical Engineering)
2022 MSc (Intelligent Building Technology and Management)
Engineer, CLP Power Hong Kong Limited
IET HK Young Women Engineer of the Year Meritorious 2022
IMechE HK Associate Member of the Year 2023



Across different overseas exchange and internship experiences, I must count the internship I had at CLP Power Hong Kong Limited and General Electric Aviation in Shanghai. I have also been provided abundant support and resources to participate in exchange programs in world-class universities, such as Georgia Institute of Technology and Tsinghua University. The invaluable experiences have deepened my understanding of scientific research, enhanced my soft skills, and explored my interest before determining my career path. I was also inspired to work on my final year project, and my thesis was awarded by the Hong Kong Institute of Engineers and Institution of Engineering and Technology. Recalling my HKUST early days, I was glad to have professors' support and willingness to share their insight on future development in the industry, which enlightened us to think critically and multidimensionally. The academic ambience was the most enjoyable and enriching one I had. I continued by work-study life with my part-time master back in HKUST MAE and graduated last year. Moving forward, I will continue to pursue professional chartership for a brighter future on my career path.



Ellen LEE

2017 BEng (Civil Engineering) and BBA (General Business Management)
Engineer, Highways Department (The Government of the HKSAR)



The time I spent in HKUST SENG was a fruitful experience that reinforces my knowledge in the engineering profession and allows me to gain insight of how we could strive for the betterment. There were lots of opportunities for me to learn, to expand my social network and to contribute to the university and the society at large. My years in HKUST SENG deepens my impression that engineering is full of challenges but at the same time very fulfilling.

Despite the busy day work, I continue and further extend my involvement and contribution as a Head Engineering Student Ambassador and Peer Mentor of SENG to different professional institutions and the society. I believe that through involvement, I gain a wider exposure and I am able to meet people with similar thoughts that speeds my learning and enables me to exchange interdisciplinary knowledge.

Maximilian PRINTZ

BEng (Computer Science) and BBA (General Business Administration) Student
University of British Columbia, Vancouver (Canada)

My exchange semester at University of British Columbia (UBC) was an unforgettable experience. It allowed me to grow academically, personally, and culturally. I gained a new perspective on my field of study and developed a deeper understanding of the world around me. I would highly recommend a study abroad experience at UBC to any student looking to expand their horizons and make the most of their academic career.



Engineering Student Ambassador

SENG chooses the best students for the Engineering Student Ambassador Program to represent the School and promote engineering to prospective students. This future-defining program provides the opportunity of a lifetime for you to learn social and leadership skills and become a future leader.

Sze Lok CHAN

2010 BEng (Computer Science)
Manager, Startup Business Development (HK & TW), Amazon Web Services Inc.

"Learn how to learn" is the most valuable lesson I learnt at HKUST. SENG is not just a school that equips you with all the essential skills that you need as an engineer. In addition, you will be also taught and trained to be a good learner. I have answered questions without having the right answers, explored ideas they didn't teach in class and was inspired by classmates, an inspiration that keeps growing in every aspect through a wide variety of courses, tutorials, industrial training and projects. I was also grateful to be supported by the School to join LIBRA (a two-week study tour) and an exchange program in the summer that have strengthened my language foundations. All of these have paved the way for me to pursue further studies and work in one of the most reputable tech companies today.





SCHOOL OF ENGINEERING

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