COLLEGE OF ENGINEERING

World Recognition

Quacquarelli Symonds (QS) World University Rankings
Worldwide (2023) By Subjects (2023)
54th Top 100
- Architecture & Built Environment
- Materials Science

U.S. News and World Report University Rankings (2023)
By Subjects
Top 50
- Artificial Intelligence
- Chemical Engineering
- Computer Science
- Electrical and Electronic Engineering
- Engineering
- Materials Science
- Nanoscience and Nanotechnology

Academic Ranking of World Universities (ARWU) (2022)
By Subjects
Top 50
- Automation & Control
- Biomedical Engineering
- Civil Engineering
- Computer Science & Engineering
- Electrical & Electronic Engineering
- Instruments Science & Technology
- Materials Science & Engineering
- Metallurgical Engineering
- Nanoscience & Nanotechnology
- Telecommunication Engineering
Bachelor’s Degree

Depending on the departments, students admitted to the 4-year bachelor’s degree programmes will either be enrolled in a major if the department offers one major, or study the common first year in a department and then choose majors available in the department after completing the first year of study.

College of Engineering

JUPAS Catalogue No.
JS1217

College of Engineering
(option: any major in College of Engineering with Minor in Engineering Entrepreneurship)

College of Engineering covers a vibrant spectrum of engineering fields and promotes academic synergy. The College has eight academic units, offering academic programmes in diverse engineering disciplines. In addition to other routes that students would choose to directly enter individual departments of the College, the JS1217 option offers a free choice of major to students. Upon admission via JS1217, students can choose any major in the College right before starting their first year of study. They will have guaranteed opportunities for internships and overseas exchange. Besides taking their chosen major, students will be required to take a minor named “Minor in Engineering Entrepreneurship”. This minor aims to introduce engineering students to the fundamentals of technology-based engineering entrepreneurship, to help students nurture an entrepreneurial mindset, innovative and systems thinking, and to broaden their multi-disciplinary perspectives. Together with the knowledge and skills learned in the majors, this minor will present an alternative career path to engineering graduates from engineers to entrepreneurs, patent lawyers, or technology commercialization agents.

Department of Architecture and Civil Engineering

JUPAS Catalogue No.
JS1201

Architectural Engineering

This major is fully accredited by the Hong Kong Institution of Engineers (HKIE) as a recognized degree for applying professional engineer qualification. The major aims to provide students with the academic background necessary for a professional architectural and building services engineer. They will be able to manage the design, manufacturing, installation, commissioning and maintenance of various building services engineering systems including air-conditioning systems, electrical services, fire protection systems and pipe systems. They will also be equipped with the concept of integration between various disciplines within the architectural and building services engineering and also the other trades of the building industry.

Architecture and Surveying

(with 2 streams in Architecture / Surveying)

This major with two streams in Architecture and Surveying aims to provide students with an environment that can develop their intellectual, analytical and critical abilities, and to enable the graduates to become competent, skilled and reflective new members of the architecture or surveying profession. This major also equip students with well-developed discipline knowledge to facilitate them to communicate effectively; contribute through team and individual application of skills and knowledge to resolve practical construction related problems; commit to lifelong learning; and build up leadership skill in the building and construction professions.

Department of Systems Engineering

JUPAS Catalogue No.
JS1216

Intelligent Manufacturing Engineering

This major aims to develop young talents for “Industry 4.0” and “intelligent manufacturing”. The major emphasises the use of artificial intelligence, computer modelling and optimisation, industrial big data, Internet of Things, automation and robotics in smart manufacturing and smart organisations. Our graduates will possess the practical skills and knowledge for innovating and managing the operations of modern manufacturing enterprises. These skills and knowledge will also apply to service industries and commercial enterprises to automate and digitalise their various processes, to push for higher and higher efficiency.

Civil Engineering

(with 2 streams in Structural Engineering / Infrastructure and Smart City)

This major is fully accredited by the Hong Kong Institution of Engineers (HKIE) as a recognized degree for applying professional engineer qualification. This major aims at equipping students with a solid foundation to work as a civil engineer. It covers a wide spectrum of areas, for example, construction technology and materials, engineering management, environmental engineering, geotechnical engineering, green urbanism, hydraulic engineering, structural engineering and transportation engineering. There are two specialisms in the major: structural engineering, and infrastructure & smart city. Graduates are expected to work as civil/structural engineers, geotechnical engineers, construction and site engineers, construction project managers, building engineers, transport engineers, etc. in private and government sectors. There are opportunities for further studies and research at graduate levels in Hong Kong, Mainland China and overseas.
Department of Computer Science

JUPAS Catalogue No. JS1204

Computer Science

The major aims to provide the best possible undergraduate education with a well-balanced emphasis on computer science theories, practical hands-on development skills, as well as software engineering know-how that are necessary for successful careers as professional software developers, system analysts, system architects and technology officers. Our study streams (Artificial Intelligence, Data Science, Information Security, Multimedia Computing, and Software Engineering & Project Management) allow students to further specialize in different areas of expertise. In addition, the major has a mandatory placement component that allows students to gain real world experience, which will provide a significant edge when students look for employment after graduation.

Department of Electrical Engineering

JUPAS Catalogue No. JS1205

Computer and Data Engineering

The aim of this major is to provide students with a strong foundation and broad skills in the core and related computer and data analysis technologies. Students will be equipped with the knowledge in both theoretical and practical aspects of computer systems. The curriculum encompasses hardware and software design, multimedia technologies, data analytics and security, cloud computing systems and artificial intelligence. Upon completion of the major, students will be sufficiently prepared for employment, and to pursue postgraduate studies and engage in life-long learning.

Electronic and Electrical Engineering

The aim of this major is to provide students with a solid education in advanced electronic and electrical technologies. Students will be exposed to the latest developments in (1) wireless communications & data technology; (2) microwave, terahertz & optical technologies; (3) photonic, electronic, & sensor devices; (4) smart control & electrical power systems; and (5) bioelectronics & bioinformatics. Our programme will transform students into well-trained professional engineers in the rapidly changing knowledge-based economy. They will be equipped throughout the training with the skills, vision, and opportunity to progress further in their career path.

Information Engineering

The aim of this major is to equip students with a balanced understanding of the theory and applications of information engineering, which encompasses networking and communications, algorithms and optimization, cybersecurity, artificial intelligence, and signal processing. It offers all-round education, which nurtures independent thinking, creativity, and various soft-skills. Upon completion of the major, graduates will be sufficiently prepared for further studies or employment in a wide range of economic sectors, mainly technology, but also business, banking, finance and trading in Hong Kong and the Asia-Pacific region.

Microelectronics Engineering

The aim of this major is to provide students with sound knowledge of the fundamental principles involved in the design and fabrication of integrated circuits (ICs), and a comprehensive understanding of electronics and information technologies. The curriculum includes application specific IC (ASIC) design for novel applications, nanotechnologies for high-performance devices and microsystems, new designs and materials for ICs, wireless and optical communications, and embedded system design. Upon completion of the major, students will be sufficiently prepared for employment in various sectors of the electronics industry, and well equipped with fundamental knowledge for pursuing postgraduate studies.

Department of Biomedical Engineering

JUPAS Catalogue No. JS1211

Biomedical Engineering

This major aims to pursue excellence in education, research and innovation through the fusion of engineering with life sciences for the advancement of human health. Students will be prepared to apply their skills to a variety of challenges in their chosen field, to solve problems in the biomedical engineering related professions, to make decisions that are socially and ethically responsible, and to build and expand upon their undergraduate foundations by engaging in learning opportunities throughout their careers. Graduates from this major are expected to possess expertise that will address the increasing public concerns and demands on medical diagnostics and therapeutic treatments, biomedical instruments, food safety and quality, advancement in pharmaceutical and health maintenance products, as well as the awareness for human health and wellness.
Materials Science and Engineering
‘Materials’ is the key for new technology development. Recent government supported initiatives in developing Hong Kong as a smart city have significantly increased the job opportunities in materials related industries. This major aims at training young talents to facilitate the development of local high-tech industries. Students will be provided with solid foundation of science in construction, semiconductor, polymer, metallic alloy, nano and bio materials. The MSE Department is equipped with world-class facilities and emphasis will be put on providing hands-on training in materials fabrication, materials processing, characterization, and materials simulation using computational method. During the four-year program, students will participate in various training modules, including summer engineering workshop, materials design project, and summer industrial and research attachment schemes. Upon graduation, they will become graduates in areas such as technical services, consultancy, manufacturing and finance, which is aligned with the manpower need in Hong Kong.

Mechanical Engineering
This major aims to provide a well-structured curriculum that combines education, research and development of innovative technologies which enables students to tackle engineering problems in mechanical-related areas efficiently and independently. It equips students with critical thinking, independent research abilities, qualitative and quantitative analysis capacities and also prepares them for professional employment in areas such as mechanical design of engines, structural analysis, computational fluid dynamics, and control analysis, automation engineering and micro & nanotechnologies.

Aerospace Engineering
The aerospace engineering major aims to provide students with a significantly broad base of engineering skills. They will meet the needs of the current and the changing aerospace industry, e.g. smart manufacturing, smart inspection, supersonic flight technologies, space flight, the next generation aircraft (e.g. unmanned air vehicles, bio-inspired flying vehicles and electric aircrafts). Moreover, the multidisciplinary education also enhances graduate employment in areas such as technical services, consultancy, manufacturing and finance, which is aligned with the manpower need in Hong Kong.

Nuclear and Risk Engineering
This major aims to equip students with multi-disciplinary knowledge in nuclear and risk engineering to meet the growing demands in low carbon power generation, healthcare and risk engineering sectors. Graduates can work in a broad spectrum of related professions or industrial sectors, such as nuclear power industry, materials engineering, nuclear medicine related fields, radiation protection, environmental protection, nuclear radiation equipment industry, risk assessment in the financial sector and also disaster management.

Computers Science and Computational Finance & Financial Technology
The programme is jointly offered by the Department of Computer Science and the College of Business, with an aim to equip students with a unique combination of expertise from the important areas of computer science, computational finance, and financial technology. Students can work in a broad spectrum of related professions or industrial sectors, from AI, big data analytics, derivatives pricing, financial econometrics, portfolio management to software engineering.
Joint Bachelor’s Degree Programmes provide students with an international undergraduate educational experience. Students will spend two years at CityU and two years at the partner university. On completion of the curriculum requirements of both universities, students will earn two bachelor’s degrees - one from CityU and one from the partner university.

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**Curriculum Design**

**Year 1**
CityU

**Year 2**
CityU

**Placement* Year**

**Year 3**
Columbia U

**Year 4**
Columbia U

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**Eligible Major**

- Bachelor of Science in Computer Science

* Students are required to complete a mandatory one-year placement in Hong Kong prior to the commencement of study at Columbia University.

For more information, please visit:

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Joint Bachelor's Degree Programme between City University of Hong Kong and National Taiwan University

**Curriculum Design**

**Year 1**
CityU

**Year 2**
NTU

**Year 3**
NTU

**Year 4**
CityU

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**Eligible Major**

- Bachelor of Engineering in Civil Engineering
- Bachelor of Engineering in Materials Science and Engineering

For more information, please visit:

Civil Engineering  Materials Science and Engineering
College of Engineering

- Department of Architecture and Civil Engineering (ACE)
- Department of Biomedical Engineering (BME)
- Department of Computer Science (CS)
- Department of Electrical Engineering (EE)
- Department of Materials Science and Engineering (MSE)
- Department of Mechanical Engineering (MNE)
- Department of Systems Engineering (SYE)
- Division of Building Science and Technology (BST)
- Co-operative Education Centre

City University of Hong Kong
Tat Chee Avenue, Kowloon, Hong Kong SAR
(852) 3442-4133
ceng.adm@cityu.edu.hk
www.cityu.edu.hk/ceng

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