College of Science and Engineering

Mission
The College of Science and Engineering is dedicated to nurturing and developing the talents of students and creating applicable knowledge in order to support social and economic advancement.

World Recognitions
Quacquarelli Symonds (QS) – 2018 World University Rankings

<table>
<thead>
<tr>
<th>By Faculty</th>
<th>World Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering and Technology</td>
<td>63rd</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>By Subject</th>
<th>World Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civil &amp; Structural Engineering</td>
<td>Top 50</td>
</tr>
<tr>
<td>Computer Science &amp; Information Systems</td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
</tr>
<tr>
<td>Architecture</td>
<td></td>
</tr>
<tr>
<td>Electrical &amp; Electronic Engineering</td>
<td></td>
</tr>
<tr>
<td>Materials Science</td>
<td>Top 100</td>
</tr>
<tr>
<td>Mechanical, Aeronautical &amp; Manufacturing Engineering</td>
<td></td>
</tr>
</tbody>
</table>

U.S. News and World Report – 2018 Best Global Universities

<table>
<thead>
<tr>
<th>City University of Hong Kong</th>
<th>World Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Science</td>
<td>12th</td>
</tr>
<tr>
<td>Engineering</td>
<td>16th</td>
</tr>
<tr>
<td>Materials Science</td>
<td>28th</td>
</tr>
</tbody>
</table>

*The College of Science and Engineering will be restructured into “College of Science” and “College of Engineering” with effect from 1 January 2019.*
For admission to the 4-year bachelor’s degree, students will be enrolled to one of the departments and choose majors available in the respective department after completing the first year of study, except for departments offering one single major.

Department of Architecture and Civil Engineering

Architectural Engineering
This major aims to provide students with the academic background necessary for a professional architectural and building services engineer. You 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 plumbing systems. You 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.

Civil Engineering (with 2 streams in Structural Engineering / Infrastructure and Urbanism)
This major aims at equipping students with a solid foundation to work as a civil engineer. It will cover a wide spectrum of topics, 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 and urbanism. The major will seek accreditation from professional organizations including The Hong Kong Institution of Engineering (HKIE). Graduates will be 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 also overseas countries.

Surveying
This major aims to provide students with the necessary skills to i) participate in real estate and infrastructure development, ii) analyse building development proposals, iii) appraise contemporary building science and engineering techniques, iv) advise on appropriate means of procurement, v) pursue financial control of construction projects and vi) apply a multi-disciplinary approach to manage construction processes.

Department of Chemistry

Chemistry
This major provides students with a firm foundation in chemical sciences with a focus in analytical chemistry, environmental chemistry, inorganic chemistry, organic chemistry, and physical chemistry. Students are also offered a wide range of elective courses such as biochemistry, computational chemistry, food chemistry, industrial chemistry, green chemistry, materials chemistry, and medicinal chemistry. The major puts strong emphasis on discovery-enriched curriculum, outside-classroom activities, and independent learning. Thus, students have the opportunity to undertake a directed study, project, local and non-local internship and exchange program. The major is designed to train and produce graduates who are able to pursue a developing career in local and regional industrial, commercial, government, education, and research sectors.

Department of Computer Science

Computer Science
The programme 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 (Data Science, Information Security, Multimedia Computing, Software Engineering and Project Management, and Artificial Intelligence) allow students to further specialize in different areas of expertise. In addition, the programme 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.

*Subject to approval

Department of Biomedical Engineering

Biomedical Engineering
To pursue excellence in education, research, and innovation through the fusion of engineering with life sciences for the advancement of human health. To enable students to 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.
Department of Electronic Engineering

JUPAS Catalogue No.: JS1205

Computer and Data Engineering
The aim of this major is to provide students with a strong foundation and broad skill in the core and related computer and data technologies. Students will be equipped with the theoretical and practical aspects of both hardware and software. In addition, the major provides opportunities for students to develop independent learning, organisational and communication skills. Upon completion of the major, graduates will be able to design and implement embedded systems and computer systems; and build data mining and data processing algorithms for analysing big data. They will also be sufficiently prepared to pursue postgraduate studies and engage in life-long learning.

Electronic and Communication Engineering
The aim of this major is to provide students with a solid education in electronics and communications. Students will be exposed to the latest developments in wireless communications and digital mobile; optical communications and optoelectronics; energy saving, control and power systems; electronic devices and circuit design.

Our education will transform students into well-trained professional engineers with the skills and vision to enable students to progress further in their career path in this rapidly changing knowledge-based economy. The major will also equip students to pursue postgraduate studies.

Information Engineering
The aim of this major is to provide the solid foundation necessary for students to embark on a successful career in Information Systems, Networking, System Administration, Software Development and Cybersecurity fields. Three popular and professional technical training programmes are integrated into the major structure. They are:

- Cisco CCNA Network Associate Certification
- Fundamental Linux Training
- Google Android and Apple iPhone/iPad Mobile App Design

The strong knowledge base gained in this major prepares graduates 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.

Department of Mathematics

JUPAS Catalogue No.: JS1206

Computing Mathematics
The Department of Mathematics offers the Bachelor of Science in Computing Mathematics degree, which aims at equipping students and producing graduates with a strong background in data analysis, mathematical modelling, scientific computing and technical computer software. Graduates will make contributions to finance and industry in the growing technology fields in Hong Kong such as biotechnology, data analysis, environmental science, information technology and intelligent business. The title of “Computing Mathematics” has been chosen as the major will focus on applied areas of mathematics linked to computing and computation.

Department of Mechanical Engineering

JUPAS Catalogue No.: JS1207

Mechanical Engineering
To provide a systematic curriculum that combines education, research and development of innovative technologies and enable students to tackle engineering problems in mechanical related areas efficiently and independently. To equip students with critical thinking, independent research, qualitative and quantitative analysis capacities. To prepare students for professional employment in areas such as engineering design of materials, dynamical and control analysis, automation engineering, and micro and nano technologies.

Nuclear and Risk Engineering
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.

Department of Physics

JUPAS Catalogue No.: JS1208

Applied Physics
The Applied Physics major is not an ordinary Physics major. In Applied Physics, students are taught biomedical physics, renewable energy and quantum physics, paving their way to a diversified career path including medicine and health care, education, engineering, commercial and industrial sectors, nuclear radiation facilities or postgraduate study.

Students may take part in the department-based research attachment scheme, which provides them an early exposure to discovery and innovation. Students of the Applied Physics major who meet certain requirements can apply for admission to the Joint Bachelor's Degree Program between City University of Hong Kong and Columbia University in USA. Students admitted to the Joint Degree Program spend their third and fourth years at Columbia University in USA, and earn a BSc degree from CityU and a BA degree from Columbia University at the end of their study.
Top-up Bachelor’s Degree

Department of Architecture and Civil Engineering

Architectural Studies
(For holders of associate degree or higher diploma in Architectural Studies or an equivalent qualification)

This major aims to provide a basis for continuing professional development. It is designed to encourage higher academic study and specialisation, particularly for those with an Associate Degree or Higher Diploma in Architectural Studies looking for articulation with a corresponding full-time Bachelor’s degree programme.

This major will prepare graduates for professional architectural practice in a multi-disciplinary professional environment. Being equipped with a deep understanding of diverse architectural knowledge, advanced technology and integrative capabilities, graduates of this major can operate in the building industry as architects or as a related built environment professional. By integrating knowledge of design and technology, our graduates are able to produce innovative and creative architectural designs.

Department of Systems Engineering and Engineering Management

Systems Engineering and Management
(For Advanced Standing II admission only)

The major aims to nurture students’ analytic skills in understanding, analysing, managing and improving modern enterprises and systems, grounded in engineering principles and scientific methods. The targets of management and improvement include the operations and processes of an enterprise, and its projects, products, and services. An enterprise under consideration can be an engineering, business, government, or service-oriented organisation.

A BENG SEM student is trained to become an analytic and versatile engineering graduate with the right skill-sets to effect these changes in the world of modern enterprises, globalised production and boundary-less information flow.

Department of Architecture and Civil Engineering

Architectural Studies

The programme prepares students for a role that is complementary to that of the architect, in design and the production of information for building projects. It provides a broad-based academic foundation for further academic and career development. Graduates have the opportunity to be admitted to full-time architectural studies degree programmes offered by CityU and other local institutions, or pursue further study with credit transfers in overseas universities.

Admission Code: JS1093

JUPAS Catalogue No.: JS1091

Building Services Engineering

This programme is accredited by the Hong Kong Institution of Engineers (HKIE). Upon completion of this programme, students would be able to perform practical works in building services engineering under the supervision of a professional building services engineer. This programme aims to equip students with knowledge of design, installation, commissioning and maintenance of mechanical and electrical systems in buildings. The curricula focus on building physics, thermal engineering, fluid mechanics, engineering mathematics, heating, ventilation and air-conditioning, electric service, plumbing and fire services and industrial training.

Construction Engineering and Management

This programme is accredited by both the Hong Kong Institution of Engineers (HKIE) and the Hong Kong Institute of Construction Managers (HKICM). It is also recognized by the Chartered Institute of Building (CIOB). The programme aims to provide students with a broad-based academic foundation and practical skills in construction engineering and construction management for entering into an international workplace or articulation to bachelor degree programmes in local and overseas universities. The programme provides opportunities for students to develop intellectual abilities and transferable skills to deal with problems creatively, to communicate, interact and work well with people, and to operate across discipline and professional boundaries.

Surveying

This programme has been accredited and recognized by the Hong Kong Institute of Surveyors (HKIS) in July 2017 as a cognate sub-degree programme for admission to their Assessment of Professional Competence (APC) through which graduates of this programme can get qualified. (Re-accreditation will be sought for the 2018/19 admission cohort). Upon completion of this programme, students are expected to perform practical surveying works and subsequently can become an Associate Member (AMHKIS) and then further a Corporate Member (MHKIS) of the HKIS. This programme aims to provide students with an all-round academic foundation and practical skills in building, estate and quantity surveying for entering into the local construction and property industries. It also encourages students to continue education in local and overseas universities; and to equip them with multiple intelligences to discover and solve problems innovatively.
A Brand New College Experience

The Joint Bachelor’s Degree Program between City University of Hong Kong and Columbia University offers students an international undergraduate educational experience—a program spanning two continents, in cosmopolitan cities that allow students to engage directly with the world around them. The program draws upon elements both traditional and innovative, combining the academic rigor of two world-renowned universities with an attention to the roles that social and cultural traditions play in a student’s intellectual formation.

4-year degree students in eligible majors with outstanding academic performance may apply for the Joint Bachelor’s Degree program.

To learn more about the Joint Bachelor’s Degree Program, visit gs.columbia.edu/cityu-hk
College of Science and Engineering
Department of Architecture and Civil Engineering (ACE)
Department of Biomedical Engineering (BME)
Department of Chemistry (CHEM)
Department of Computer Science (CS)
Department of Electronic Engineering (EE)
Department of Materials Science and Engineering (MSE)
Department of Mathematics (MA)
Department of Mechanical Engineering (MNE)
Department of Physics (PHY)
Department of Systems Engineering and Engineering Management (SEEM)
Division of Building Science and Technology (BST)
Co-operative Education Centre