The Department of Electronic Engineering (EE) was established in 1970 by Prof. Charles KAO, former Vice-Chancellor of the Chinese University of optical fibres in communications. The Bachelor of Engineering (Honours) in Electronic Engineering Programme features a dynamic and adaptive curriculum that covers a wide range of topics, including integrated circuits and electronic devices, opto-electronics and optical communication, microprocessors and computer architecture, telecommunication and wireless systems, multimedia and signal processing, medical instruments and telemedicine, electronic materials, and nanotechnology. The courses offered are designed to convey both theoretical and practical knowledge and to provide balanced training in both hardware and software skills. The EE Department was ranked No. 1 [number 1] in Hong Kong by QS World University Rankings by Subject 2016 and by Shanghai Ranking’s Global Ranking of Academic Subjects 2017.

Starting in 2018, the EE programme will directly admit its students through [1] Joint University Programme Admission System (JUPAS code: JS4434) and [2] other admission channels (for applicants with other academic qualifications such as Associate Degree/Higher Diploma, IB, GCE, etc.) We look for applicants with innovation minds who are passionate about engineering, full of curiosity and have sufficient training in mathematics and science such as physics and chemistry. EE graduates pursue successful careers in a wide range of hi-tech industrial and business sectors including telecommunications, information technology, e-commerce, technology services, industrial manufacturing, and product design and development. Some of the graduates also choose to pursue postgraduate studies at local or overseas institutions.

For more details, please visit the programme website at www.ee.cuhk.edu.hk.

DIRECT ADMISSION SCHEME AND NEW PROGRAMME

The Faculty of Engineering offers a wide choices of undergraduate engineering programmes. In this issue, we feature some of our programmes with development: Biomedical Engineering, Electronic Engineering, Energy and Environmental Engineering, and Financial Engineering.

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After more than a decade of incubation, development and strategic planning, CUHK has judged that the time is now right to establish the Department of Biomedical Engineering (BME) on 1 July 2017 in the Faculty of Engineering in close collaboration with Faculty of Medicine. The new Department will host all undergraduate and postgraduate programmes in the BME to champion their further coherent development and to scale new heights in this important area of education, research and professional services.

Prof. Raymond TONG, Chairman of the new Department, stressed that for BME to exert the significant impacts from bench to bedside, deep collaboration between engineers and clinicians is absolutely essential. He very much appreciates the collegial environment at CUHK and is confident the BME activities will continue to thrive not only in the engineering laboratories on the main campus, but also in those on our medical campus as well.

The core Faculty members of the new BME Department would like to thank all their colleagues, particularly those in EE and MAE, for their supports all these years in the development of the Biomedical Engineering programmes. They look forward to fruitful partnerships with all their sister departments to establish BME as one of the top educational and research programmes in CUHK.

Students in the BEng Programme in BME are provided with solid underpinnings in science and mathematics, along with a strong engineering foundation in biomechanics, biointerfaces, and biomedical circuits and signals. Students may choose to concentrate upon one of three streams, namely (a) medical instrumentation and biosensors, (b) biomedical imaging and informatics, and (c) biomechanical, cell and tissue engineering. Depending on their respective interests, students will have ample opportunity to apply advanced engineering technology to areas such as surgical and rehabilitation robotics, wearable biosensors, lab-on-a-chip, organ-on-a-chip, image-based computer-assisted diagnostics, nanomedicine, and regenerative medicine.

Many BME students opt for industrial internships and research internships, both local and overseas, as well as many other types of co-curricular and extra-curricular experiential learning. For example, in recent years BME students have been hosted as summer interns at the University of California at Irvine, Columbia University in New York City, Imperial College in London, the Korea Institute of Science & Technology in Seoul, Northwestern University in Chicago, the University of Pittsburgh, the National University of Singapore, Nanyang Technological University, and the University of Toronto. BME students have also participated and won many awards in regional and international competitions such as iGEM, EMEdIC Global, Challenge Cup and others.

Starting in 2018, the BEng programme in Biomedical Engineering will admit its students directly from among applicants with HKDSE (JUPAS code: JS4460) or other recognized academic qualifications such as Mainland-JEE, IB, GCE-AL, and International-AL. This direct programme admission will allow BME to recruit students with a broader underpinning in science and mathematics. For HKDSE, higher weighting will be assigned to science subjects such as biology, chemistry, physics, and combined science, as well as to mathematics or its extended modules.

For more details, please visit www.bme.cuhk.edu.hk.
Energy and Environmental Engineering Programme (EEEN) educates and equips students with fundamental knowledge and practical experience in an integrated study of the energy and environmental engineering field covering the related areas of energy generation, storage and distribution, environmental monitoring, assessment and design, as well as building services and management. The Programme is aimed at preparing our graduates to embark on a broad base of successful careers as practitioners, academics, entrepreneurs, and leaders in the fields of energy, environmental science, building service engineering and beyond.

EEEN has been designed with a strong interdisciplinary nature spanning the relevant topics of engineering, environmental and architectural studies. The EEEN curriculum incorporates significant elements from the disciplines of Environmental Science (ENSC), Geography and Resource Management (GRMD), and Architecture (ARCH) areas. Through the Programme, students will acquire fundamental knowledge of the principles of the relevant subjects, as well as the ability to facilitate solutions to problems pertaining to energy technologies, environmental engineering, urban pollutions, building performance assessment and control, etc., thereby contributing to the well-being of our society.

Admission Schemes

We welcome any applicant satisfying the following basic academic requirements to apply.

JUPAS Admission: Secondary school students taking the Hong Kong Diploma of Secondary School Examination (HKDSE) should apply for admission through the Joint University Programme Admission System (JUPAS).

Other Admission Channels: Local applicants with other qualifications (Associate Degree/Higher Diploma, HKALE, GCE, IB, SAT/AP, etc.) can apply through the non-JUPAS admission scheme. Non-local students who require a student visa to study in Hong Kong can apply through the International Students’ Admission Scheme. A non-JUPAS or international applicant may apply for “Admission with Advanced Standing” if he/she meets the specific requirements for specific qualifications. Applicants holding the qualification of associate degree or a higher diploma with excellent results may apply for direct admission to senior-year places. Mainland students who are current Gao Kao candidates must apply through the National Colleges and Universities Enrolment System.

Programme Highlight

The EEEN Programme has three streams, i.e., Sustainable Energy Technology, Environmental Engineering, and Green Building Technology. Green Building Technology, a newly added stream, provides students with fundamental knowledge on environmental performance assessment and energy management of urban buildings. For more details, please go to www.eeen.cuhk.edu.hk

Financial Technology (FinTech) is an emerging engineering discipline that focuses on employing technological innovations in financial practices. Leveraging on the cutting-edge developments of engineering, in particular information technology and data sciences, it demonstrates an unprecedented potential to revolutionise the nature of traditional financial service industry in a fundamental way.

The advents of digital currencies, crowdfunding platforms, robot investment advisors, big data analytics, and algorithm-driven trading strategies profoundly impact the means and behaviors of how people make payments online and offline, store and manage their wealth, and finance their businesses. On the one hand, FinTech significantly improves end-users' service experience, making the financial industry more inclusive and productive. On the other hand, it also poses a crucial challenge to understanding and analysing its social benefits and risks economically, technologically, and legally, so as to foster its healthy development.

The mission of the FinTech programme is to educate and equip students with the essential knowledge and capabilities to apply technological innovations to financial services, and to nurture leadership and entrepreneurship for the next generation of financial talents in support of Hong Kong’s endeavor to grow into an international FinTech hub. After four years of all-round education, students are expected to be able to:

- derive and develop financial and managerial insights from big data;
- design and engineer innovative solutions to meet financial service needs;
- optimise financial decisions in complex business environments; and
- understand and analyse the social, economic, security, and legal impacts of their solutions.

This new programme is built upon a strong collaboration between CUHK Faculty of Engineering and the Faculties of Business Administration, Law, and Social Science. It offers multi-disciplinary training, which will equip students with both solid technological education in engineering innovations and insightful understanding of the business and legal environment for FinTech. New course offerings, including Financial Infrastructures, E-Payment Systems and Cryptocurrency Technologies, Internet Finance, Financial Informatics, bring to our undergraduate education state-of-the-art developments in the field for the first time. Closely collaborating with the Hong Kong Monetary Authority (HKMA) and Hong Kong Applied Science and Technology Research Institute (ASTRI), the programme also organises internships and overseas exchange to encourage students to apply theories to practices.