INFORMATION ENGINEERING
Principles, Technologies, Networks, and Applications

Data Compression
MPEG, High-Definition TV
Cryptography
Network Security
Telecommunication Switching
Optical Fiber Networks
Fiber-To-The-Home
Information Theory, Network Coding

3G / 4G Mobile Systems
Wi-Fi, WiMAX, UWB
Internet Architectures
Internet Protocols
Multimedia Networking
Network Programming
Peer-to-Peer Systems
Broadband Internet Applications

Information
- Data, Voice, Image, Video, Multimedia
- Transmission
- Networking
- Processing

Engineering
- Understand the principles (fundamental)
- Solve problems (scientific and systematic)
- Create new technologies (innovative)

To train engineering leaders who can manage and create new information technologies for all disciplines.
We offer an all-around engineering education that focuses on:
- sound engineering knowledge and creative minds.
- solid experience with innovative technologies.
- good soft skills (communication, interpersonal, and business).
- broad vision and exposure.

The Information Engineering Programme is accredited by Hong Kong Institute of Engineers (HKIE).

Engineering Specializations
Students can develop their engineering specialties in the following streams:
- Telecommunications – optical and wireless communications, telecommunication switching, teletraffic engineering.
- Internet Engineering – advanced Internet protocols, networking laboratories, operating systems, peer-to-peer systems.
- Information Processing – multimedia coding (JPEG/MPEG/HDTV), cryptography, security, information theory, network coding theory.

Internship, Work-Study, Overseas Exchange
Students can acquire working experience by taking short-term or 7-15 month paid internship in reputable companies in Hong Kong, or gain international exposure by going for a short term or year long overseas exchange. We offer overseas exchange scholarships to students with good academic results.

Business Enrichment
Students can take business courses (e.g., marketing, accountancy, economics, and management) as non-core electives to enrich their business exposure.

Further Studies
The Information Engineering Department undertakes world-leading research and offers top quality Ph.D., M.Phil., M.Sc., and B.Eng. Programmes. Our graduates have been awarded full scholarships to enter Ph.D. programmes of top universities all over the world (e.g., MIT, UC Berkeley, Stanford, Oxford, and Cambridge).

Double-Degree Options
In collaboration with other faculties, the Information Engineering Department is also offering the following two 4-year double-degree programmes:

(1) Double Degree Programme in Mathematics and Information Engineering
(2) Double Degree Programme in Information Engineering and Business Administration

Please refer to separate leaflets for more detailed information about these double-degree programmes.
Curriculum

Bachelor of Engineering (Information Engineering)

The Information Engineering curriculum is designed for diversity and flexibility. It is structured into four parts: Major Required, Major Electives (Core and Non-Core), and other Elective courses.

Students have ample flexibility to customize the curriculum to his/her interests and capabilities.

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<th>Major Required</th>
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<td>Database Systems</td>
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<td>Advanced Engineering Mathematics, Probability Models and Applications</td>
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<td>Information Engineering in Society</td>
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Work-Study Programme

The Work Study Programme will be held in the summer of every year, in the belief that combining course work and industrial training would narrow the gap between academic education and practical engineering. Students can participate in this Work Study Program on a voluntary basis, one year before their final year of study. Each participant is required to spend about 1 year in a selected local company as a full-time employee. They will be engaged in Information Technology, Telecommunications, and Application Services. The student will continue his/her final year of study after the internship.

Participating Companies:
Hong Kong Bank (HSBC), PCCW, Smartone Mobile Communications, Mass Transit Railway, China Light & Power, Hewlett-Packard (HP), Fujitsu PC Asia, IBM, Morgan Stanley, JP Morgan Chase, Reuters, Hong Kong Electric, Hong Kong Government (OGCIO), etc.
Mr. LIU Xiaojun, graduated in 2007; currently a Sales and Trading Technology Analyst, Goldman Sachs (Asia) L.L.C.

IE not only provides extensive training of software, hardware, communications and networking but also enables our students to build up effective and efficient thinking strategy. With the knowledge and capability equipped, our graduates are highly needed by all industries such as IT companies (e.g. Microsoft and Google), investment banks (e.g. Goldman Sachs and Morgan Stanley), consulting firms (e.g. BCG and Bain), accounting firms (e.g. Big 4), etc. Many graduates even established their own companies to grasp their future in their hands. As we all know, human life and economics are improved due to the advances of technology. Let’s join IE and create a prosperous future!

Mr. CHEUNG, Yang, graduated in 2006; obtained M.Phil. degree at CUHK in 2008; currently a Technical Yahoo! at Yahoo! Hong Kong.

The IE programme at CUHK is a comprehensive curriculum that well prepares both my career and my future studies. It provides a wide range of choices for students with different backgrounds and different career goals. We could have a taste of everything from fundamental principles to on-the-market practice, from hardware to software, and from engineering to business-related topics. The IE programme is particularly strong in networking-related subjects, which have provided me a great competitive edge to become a better candidate for my career challenges. Thanks to the IE programme, I have been inspired to pursue my master degree and am now joining Yahoo!, feeling confident at my work everyday.

Mr. HUI, Ka-Hung, graduated in 2005; obtained M.Phil. degree at CUHK in 2007; currently a Ph.D. candidate at Northwestern University, Illinois, United States.

Through IE, I have built up the knowledge and analytical skills that are useful for my future studies and career. Not only can we learn about the theoretical aspects of communications and networking, IE also provides opportunities for students to participate in projects and research activities that involve industrial collaborations. I have also been benefited a lot through interaction with our professors. Their ideas and advices have given me many insights and inspirations to my studies. I have enjoyed studying and working in IE during these years.

Mr. AU YEUNG, Ching-Man, graduated in 2004; currently a research staff at the NTT Communication Science Laboratories in Kyoto, Japan.

Throughout my three years in IE, I had the opportunity to expose myself to a wide range of topics which were both interesting and intellectually challenging. Not only did I equip myself with various mathematical and programming skills in IE, I also learnt to understand and appreciate different products of information engineering. Nowadays mobile phones, optical fibers, image processing tools, video streaming software, and data encryption are so common that most people have taken them for granted when using electronic devices. However, through the courses provided by IE, I came to understand the working principles of all these things and realized that all these are the results of years of research and brilliant design even down to the smallest aspects. My study in IE has enabled me to pursue my future career with confidence and to understand the fast-changing world in which information engineering is assuming an increasingly important role in facilitating interactions between people around the world.

Mr. YANG, Chun-Wai Kenny, graduated in 2004; currently an Equity Derivatives Trader in Rabobank, Hong Kong.

If you are an ambitious and dynamic Generation Y, Information Engineering will definitely satisfy your unbounded curiosity. From computer programming to optical communication, cryptography to image processing, you will come across many different interesting academic areas and will be amazed to see how these innovative technologies are practically applied to improve the world and our lives. Equipped with logical and critical thinking, employers always find us well round educated with high adaptability to overcome challenges in different roles and positions. It is not surprised to know that my fellow classmates work for a wide variety of local and international employers in various fields ranging from IT to other financial institutions and investment banks. On top of building deep and wide solid foundation on technical knowledge, the IE programme will train up your analytical skill, presentation skill and creativity. Through the structured coursework and projects, you will attain time management and project management skills. You will also be able to replicate and transfer this learning process to any industry.
Joint University Programmes Admissions System (JUPAS)

- **HKCEE subject requirements:**
  Grade E or above in at least seven subjects including Chinese Language, English Language (Syllabus B), Physics, Mathematics and Additional Mathematics.

- **HKALE subject requirements:**
  Grade E or above in:
  (i) Chinese Language and Culture (AS) and Use of English (AS); AND
  (ii) Pure Mathematics (AL), OR Physics (AL), OR Applied Mathematics (AL); OR Computer Studies (AL); AND
  (iii) One other AL science subject*, OR two AS science subjects*, OR one AS science subject* plus Liberal Studies (AS).

*Science subjects include Applied Mathematics (AL/AS), Biology (AL), Chemistry (AL/AS), Computer Applications (AS), Computer Studies (AL), Electronics (AS), Engineering Science (AL), Math & Statistics (AS), Physics (AL/AS), Pure Mathematics (AL).

We offer Overseas Exchange Programme Scholarship to JUPAS applicants who have achieved outstanding HKALE results.

Early Admission Scheme (EAS)

Students with outstanding HKCEE results may apply through EAS. Our Information Engineering Department offers an Overseas Exchange Programme Scholarship to all Secondary 6 intake students.

Mainland Admission

Starting in 2005, mainland applicants may apply to the university through the National Colleges Admission System. We offer Overseas Exchange Programme Scholarship to mainland applicants who have achieved outstanding joint entrance examination scores.

Non-JUPAS Admission (Local and International)

Local and overseas applicants can seek admission on the strength of qualifications other than Hong Kong Advanced Level Examination results.

Second-year Admission of Sub-degree Holders

Sub-degree holders in relevant programmes may apply for entry to the second year of the Information Engineering Programme.

Detailed information about undergraduate admissions can be found at [http://www.ie.cuhk.edu.hk/application](http://www.ie.cuhk.edu.hk/application).

香港中文大學信息工程學系
Department of Information Engineering, The Chinese University of Hong Kong
Room 834, Ho Sin Hang Engineering Building
The Chinese University of Hong Kong
Shatin, N.T., Hong Kong

Phone: (852) 2609-8385
Fax: (852) 2603-5032
E-mail: dept@ie.cuhk.edu.hk
Website: [http://www.ie.cuhk.edu.hk](http://www.ie.cuhk.edu.hk)
Our professors are world-class researchers who obtained their Ph.D. degrees from top universities like MIT, Berkeley, Harvard, Columbia, Stanford, and CUHK. They have published books and research papers extensively, received awards and patents, and served actively to local and overseas communities.

Most importantly, our professors like to interact with students, inspiring them to become top-notch researchers and engineers.

Prof. CHAN Chun-kit, Calvin
The Chinese University of Hong Kong

Prof. CHANG Ming-yuen, Michael
Cambridge University

Prof. CHEN Lian-kuan
Columbia University

Prof. CHEN Minghua
University of California, Berkeley

Prof. CHEUNG Kwok-wai
California Institute of Technology

Prof. CHIU Dah-ming, Winston
Harvard University

Prof. HUANG Jianwei
Northwestern University

Prof. JAGGI Sidharth
California Institute of Technology

Prof. LAU Wing-cheong
University of Texas at Austin

Prof. LEE Tong, Tony
Polytechnic Institute of New York

Prof. LEE Yiu-bun, Jack
The Chinese University of Hong Kong

Prof. LI Shuo-yen, Robert
University of California, Berkeley

Prof. LIEW Soung-chang
Massachusetts Institute of Technology

Prof. LOK Tat-ming
Purdue University

Prof. NAIR M. Chandra
Stanford University

Prof. NG Wai-yin, Will
Cambridge University

Prof. TANG Xiaou, Sean
Massachusetts Institute of Technology

Prof. WEI Keh-wei, Victor
University of Hawaii

Prof. WONG Po-choi
The Chinese University of Hong Kong

Prof. WONG Wing-shing, Wing
Harvard University

Prof. YEUNG Wai-ho, Raymond
Cornell University

Prof. YUM Tak-shing, Peter
Columbia University

Prof. ZHANG Yingjun, Angela
The Hong Kong University of Science & Technology
Career Prospects

Our programme offers a life-long and life-wide career path for our graduates.

Stages of Career Development

Stage 3: Leadership
- Chief Technology Officer
- Chief Executive Officer
- Start Own Business Entrepreneur

Stage 2: Managerial
- Technology Expert
- Project Manager
- Business Consultant
- Business
  - Education
  - Marketing
  - Government
  - Management
  - Others

Stage 1: Professional
- Project Engineers – hardware, software, network
- System Engineers – system, support, security
- Business Engineers – sales, marketing, product
- Research/Training/Consultant – technology, skills

Engineering Profession
Non-Engineering Profession

Employment Statistics

With solid IT knowledge, strong problem solving skills, and good communications abilities, our graduates have very promising careers. We have about 100 graduates every year that go for a diversified career. Most of them start as engineering professionals, while others go to business or other disciplines. We also have over 17% of students who pursue further studies either in full-time or part-time mode.

According to the 2009 Graduate Employment Survey, our graduates have on average of two offers, with median salary at HK$10,500.

2009 IE Graduate Employment in March, 2010 - Job Nature

- IT Administration / Management / Consulting: 29.0%
- Telecommunications & Network Engineering: 17.7%
- Software Engineering and Development: 17.7%
- Electronic / Computer Engineering: 9.7%
- Banking / Finance / Accounting: 6.5%
- Sales / Marketing / Management: 16.1%
- Further Studies: 4.8%
- Teaching: 1.6%
- Others: 6.5%

Percentage (%)