



香港中文大學  
The Chinese University of Hong Kong

# 信息工程學系

## Department of Information Engineering



# INFORMATION ENGINEERING

## Principles, Technologies, Networks, and 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.

# PROGRAMME

## Programme Features

The mission of the Information Engineering Department is to nurture and educate engineering leaders of the Information World of today and tomorrow. We offer an all-round engineering education that focuses on:

- \* Sound engineering knowledge and creativity;
- \* Solid experience with innovative technologies;
- \* Good soft skills (communication, interpersonal, and business);
- \* Broad vision and exposure.

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



## Streams of Specialization

Students may choose to develop their engineering specialities in one or more of the following streams:

* <b>Communications</b> -	Digital Communications, Optical Communications, Wireless Communications, Telecommunication Switching Systems, ....
* <b>Cyber Security</b> -	Operating Systems, Applied Cryptography, Web Programming and Security, Security and Privacy in Cyber Systems, ....
* <b>Internet Engineering</b> -	Operating Systems, Advanced Internet Protocols, Networking Software Design, Networking Labs, Mobile Networking, ....
* <b>Enrichment</b> -	Information Theory, Simulation and Statistical Analysis, Random Processes, Network Coding, Multimedia Coding and Processing, ....

## 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.

Pre-final year students can also participate in Work Study Program on a voluntary basis. Each participant is required to spend about a year in a selected local company as a full-time employee and continue his/her final year of study after the internship.

Participating companies include 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) and more.

## 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 the Faculty of Business Administration, the Information Engineering Department is also offering the Double-Degree Programme in Information Engineering and Business Administration. Please refer to separate leaflets for details information about this double-degree programme.

# CURRICULUM

		<b>Core Electives</b>	<b>University Core Requirement</b>
Year 4	Final Year Project I Final Year Project II <i>plus elective courses</i> <b>Specialized</b>	Adv. Internet Protocols Networking Laboratories Telecom Switching Information Theory Network Coding Digital Communications Wireless Communications Optical Communications Network Programming Operating Systems Multimedia Coding Image & Video Processing Cyber Security Cryptography Peer-to-Peer Systems Product Design Project  <i>and more!</i>	English Language Chinese Language Foundation GE College GE Other GE Physical Education IT Training
Year 3	Microprocessors & Computer Systems, Computer Networks, Information & Software Engineering Practice, Info Engineering Lab, Microprocessor System Design Lab <i>plus elective courses</i> <b>Professional</b>		
Year 2	Engineering Mathematics, Data Structures, Signals & Systems, Principles of Communications, Technology, Society & Engineering Practice <b>Advanced</b>		
Year 1	<b>Faculty Package +</b> Intro to Engineering Design Intro to Computing Engineering Physics		
<b>**** Major Requirement including Faculty Package (75 units) ****</b>			

# CAREER PROSPECT

Stage 3	<b>Leadership</b>	Chief Technology Officer	Chief Executive Officer	Entrepreneur
Stage 2	<b>Managerial</b>	Technology Expert	Project Manager	Business Consultant
Stage 1	<b>Professional</b>	Project Engineers - hardware, software, networking System Engineers - systems, security, services Business Engineers - sales, marketing, product management Research/Training/Consulting		
<b>Engineering Positions</b>				Business Education Marketing Government Management Others
				<b>Non-Engineering Positions</b>

# CONTACT US

Please refer to the brochure of the **Faculty of Engineering** or visit the website at <http://www.erg.cuhk.edu.hk> for further details.

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# Our Professors



Our Professors are dedicated educators and world-class researchers who obtained their Ph.D. degrees from top universities like MIT, Berkeley, Harvard, Columbia, Stanford, as well as CUHK. Many of them have extensive industrial experience with leading institutions world-wide before joining the department. They are authors of seminal and award-winning publications, holding key patents for innovations in various fields. They maintain strong ties with the local industries and actively contribute to the international research communities. Most importantly, our professors love to interact with students and inspire them to become top-notch researchers, engineers, and leaders.

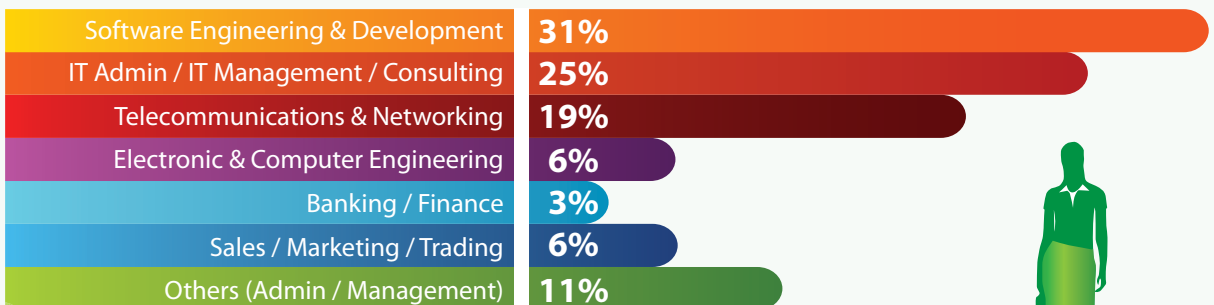


# Employment Statistics

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 set of careers. Most of them start as engineering professionals, while others go to business or other disciplines. More than 10% of our fresh graduates continue for further studies.

## 2011 IE Graduate Employment Survey in February, 2012 ~ Job Nature

### Job Nature



# Graduates/Students Sharing



**Liu Ding**

Graduated in 2012; Currently a Ph.D. candidate in University of Illinois at Urbana-Champaign

I graduated from the Department of Information Engineering, Faculty of Engineering of CUHK. This rigorous programme gave me an all-round education with professional training and helped me build a solid background for my further theoretical study. The various major courses provided by IE department can cover different aspects of information technology nowadays, such as network engineering, multimedia processing and cyber security. As an undergraduate, I can take advantage of the opportunity to select one stream of interest as my concentration in major study.

During my junior study, I seized a valuable opportunity to be an exchange student of Massachusetts Institute of Technology. Through this exchange life in a top university, I was deeply impressed with the challenging research projects conducted in MIT and realized my research interest in the area of signal processing, which drove me to pursue a PhD in UIUC. Besides this exchange program, the summer research programs and internship opportunities are also quite useful for students to broaden their horizons. Some classmates of mine got the chance to conduct summer research in Stanford, UC Berkeley and Caltech, while others took internships in companies like Yahoo! and UBS, which made them stand out from the crowd during the job hunting process.

**Kan Man Chun Andy**

Currently a Year 3 student



Among numerous kinds of engineering, the importance of information engineering in the information explosion era is undeniable and it is deeply related to our daily lives. The reason that we are able to enjoy the Internet services anywhere and anytime conveniently is because engineers have made effort in the development and innovation of communication networks. Even in the financial and business sectors, for instance, stock and bank transactions rely heavily on reliable electronic information systems. Moreover, search and online social networks that we use every day, for example, Google, Yahoo!, YouTube, Facebook, etc., also have complex and massive systems to support all their features which cannot be done by human. Engineers' innovation and effort have greatly improved our quality of life. Although Information engineering has been applied in many aspects in daily lives, there are still many more areas that information engineering could be applied. I am glad that I can be involved in the information engineering field.



**Ying Xuhang**

Currently a Year 4 student



When introducing my major, I will always say something like "Information Engineering (IE), a subject between Computer Science (CS) and Electrical Engineering (EE)". Indeed, this could be the most intuitive understanding of Information Engineering. Covering basic algorithms and data structures in CS, communication principles in EE as well as Internet engineering and information engineering, IE is so comprehensive and unique that its students can enjoy the chance to broaden their horizons, find their own interests in this subject and be better prepared for future careers.

Apart from courses, IE also offers precious opportunities such as research programs, exchange programs and internship. The research experience in my second summer was very beneficial for me. I gained much better understanding in time management, research methodology and so on. The exchange experience in University College London in the second term of my third year provided me with a great chance to immerse myself in a totally different culture and communicate with international students coming from various backgrounds. As you can imagine, IE students have more choices for every summer. They can either apply for internship or join an overseas research program in a fine university, which is definitely beneficial for their future development.

All in all, as a subject dealing with information, Information Engineering does provide a lot of precious opportunities for its students. No matter what you want to do after four years' study, either work or further education, you will always have the chance to get what you want.