Postgraduate Programmes
Doctor of Philosophy in Information Engineering

The PhD Degree Programme provides in-depth training for students who are interested in applied and theoretical research. The Programme requires at least three years for full-time and four years for part-time studies. Part-time students are admitted only on exceptional basis. Students are required to register and pass in at least four advanced level major courses. They must submit a research proposal and pass an oral qualifying examination within two years of first registration to become a PhD candidate. PhD candidates will continue with their research and submit a research thesis. They are then required to pass an oral examination for graduation.

Admission

Applicants for the Doctoral programme shall:

1. have a Master’s degree from a recognized university in Computer / Information / Electronic, or related engineering and science fields; or
2. have a Bachelor’s degree, normally with Second Class Honors in the upper division or above, and have been registered in a course of study for a Master’s degree at this University for at least one year and have demonstrated research ability; or
3. have been registered in a course of study for a doctoral degree at a recognized university for at least one year, and have been approved for admission by the Graduate Council.

All applicants should fulfill the English Language Proficiency Requirement before they are admitted:

1. possess a pass grade in English (AS Level), or
2. have a degree from a university in Hong Kong or an English-speaking country, or
3. submit one of the following scores for assessment: TOEFL 550, GMAT (Verbal), College English Test (CET-6) of PRC, IELTS (6.5), or the equivalent.

Postgraduate Programmes

The Graduate Division of the Department currently offers three graduate programmes leading to the degrees of MSc, MPhil and PhD. The department has research groups conducting world-recognized research in various areas to support these graduate programmes. Please refer to the sections on laboratories and faculty profiles on the details of our research activities.
Fields of Specialization

1. Communications Research
   a) Broadband Access Technology
   b) Internetworking and Network Management
   c) Wireless Communications
   d) Multimedia Communications
   e) Switching and Routing
   f) Optical Communication and Lightwave Networks

2. Internet Engineering
   a) Web Engineering
   b) E-Commerce
   c) Security Technology
   d) Search Engine and Agent Systems

3. Information Processing
   a) Information and Coding Theory
   b) Data Compression
   c) Visual Information Processing
   d) Pattern Recognition and Computer Vision

---

Postgraduate Courses (for PhD and MPhil Programmes)

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telecommunication Switching &amp; Network Systems</td>
<td>IEG 4020</td>
</tr>
<tr>
<td>Optical Communications</td>
<td>IEG 4030</td>
</tr>
<tr>
<td>Decision Making Methodology</td>
<td>IEG 4060</td>
</tr>
<tr>
<td>Wireless Communication Systems</td>
<td>IEG 4100</td>
</tr>
<tr>
<td>Introduction to Channel Coding &amp; Cryptography</td>
<td>IEG 4130</td>
</tr>
<tr>
<td>Teletraffic Engineering</td>
<td>IEG 4140</td>
</tr>
<tr>
<td>Image &amp; Video Processing</td>
<td>IEG 4160</td>
</tr>
<tr>
<td>Network Software Design &amp; Programming</td>
<td>IEG 4180</td>
</tr>
<tr>
<td>Multimedia Coding &amp; Processing</td>
<td>IEG 4190</td>
</tr>
<tr>
<td>Performance Evaluation Methodology</td>
<td>IEG 5020</td>
</tr>
<tr>
<td>Satellite Communications</td>
<td>IEG 5030</td>
</tr>
<tr>
<td>Communication Technology Seminar I</td>
<td>IEG 5050</td>
</tr>
<tr>
<td>Communication Technology Seminar II</td>
<td>IEG 5100</td>
</tr>
<tr>
<td>Switching System</td>
<td>IEG 5110</td>
</tr>
<tr>
<td>Advanced Topics in Information Engineering I / II</td>
<td>IEG 5120 / 5130</td>
</tr>
<tr>
<td>Signal Analysis &amp; Applications</td>
<td>IEG 5124</td>
</tr>
<tr>
<td>Lightwave Networks</td>
<td>IEG 5140</td>
</tr>
<tr>
<td>Video Distribution on Lightwave Networks</td>
<td>IEG 5150</td>
</tr>
<tr>
<td>Information Theory</td>
<td>IEG 5154</td>
</tr>
<tr>
<td>Personal Communication Systems</td>
<td>IEG 5160</td>
</tr>
<tr>
<td>Video Compression</td>
<td>IEG 5180</td>
</tr>
<tr>
<td>Advanced Topics in Broadband Networks</td>
<td>IEG 5190</td>
</tr>
<tr>
<td>Advanced Topics in Computer Networks</td>
<td>IEG 5200</td>
</tr>
<tr>
<td>Advanced Topics in Information Processing</td>
<td>IEG 5210</td>
</tr>
<tr>
<td>Advanced Topics in Multimedia Systems</td>
<td>IEG 5220</td>
</tr>
<tr>
<td>Advanced Topics in Wireless Communications</td>
<td>IEG 5230</td>
</tr>
<tr>
<td>Cryptography, Security &amp; E-Commerce</td>
<td>IEG 5240</td>
</tr>
</tbody>
</table>

1. Required courses
   - MPhil Thesis Research I to X (for MPhil Programme): IEG 801T-810T
   - PhD Thesis Research I to XVI (for PhD Programme): IEG 901T-916T
Master of Philosophy in Information Engineering

The MPhil Degree Programme is research oriented. The Programme is normally two-year for full-time students and three-year for part-time students. Students are required to complete a minimum of 12 units of advanced level major courses, and submit a research thesis upon graduation. Students also need to pass an IT Proficiency Test as specified by the university, and an Improving Postgraduate Learning (IPL) course “Observing Intellectual Property and Copyright Law during Research.”

Admission

Applicants for Master’s Degree programmes should satisfy the following requirements:
1. graduated from a recognized university and obtained a Bachelor’s degree in Computer / Information / Electronic or related engineering and science fields, normally with honors not lower than Second Class; or
2. graduated from an honors programme of a recognized university with a Bachelor’s degree in Computer / Information / Electronic, or related engineering and science fields, normally achieving an average grade of not lower than “B” in undergraduate courses; or
3. completed a course of study in a tertiary educational institution and obtained professional or similar qualifications equivalent to an honors degree.

All applicants should fulfill the English Language Proficiency Requirement before they are admitted:
1. possess a pass grade in English (AS Level), or
2. have a degree from a university in Hong Kong or an English-speaking country, or
3. submit one of the following scores for assessment: TOEFL 550, GMAT (Verbal), College English Test (CET-6) of PRC, IELTS (6.5), or the equivalent.

Fields of Specialization

The fields of specialization offered for the Master degree programme are the same as those for the PhD degree programme.

Postgraduate Courses

Please refer to the PhD degree programme for the list of postgraduate courses.
Master of Science in Information Engineering (Part-time)

The part-time MSc programme is course-work oriented, covering advanced topics and the state-of-the-art technologies in Information Engineering. The programme is ideal for practicing engineers who want to update their technical knowledge. The programme is designed to provide a broad perspective of the latest development in technologies, with particular emphasis on computer networking and communication systems.

The length of study is 20 months divided into 5 terms. To fulfill the MSc degree requirements, students must pass the IT Proficiency Test, and are required to complete a total of eight graduate courses within the Engineering Faculty, six of which must be offered by the Division, and to achieve a GPA of 2.0 or above and fail in no more than one course. Each course consists of twelve / thirteen 3-hour lectures / laboratory sessions over a period of 12 weeks, and a recess followed by a 2 or 3-hour examination. Normally one or two courses will be offered per term. Lectures will be conducted during weekday evenings at the Tech Centre of Hong Kong Science & Technology Parks next to Kowloon Tong MTR station or at the Campus of The Chinese University of Hong Kong (CUHK), Shatin. Access to the laboratories in the department at CUHK will be provided.

Students can select up to two electives (out of the eight courses) from the Department of Automation and Computer-Aided Engineering, Department of Electronics Engineering and Department of System Engineering and Engineering Management.

Admission

Applicants should normally hold a Bachelor degree in physical science or engineering with at least Second Class Honors or equivalent. The applicant must also satisfy the general entrance requirement of the Graduate School Secretariat.

Recommended Study Scheme

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st (Sep-Dec)</td>
<td>IEG 7000</td>
<td>Computer Networks</td>
</tr>
<tr>
<td></td>
<td>IEG 7001</td>
<td>Wireless Communication Systems</td>
</tr>
<tr>
<td>2nd (Jan-Apr)</td>
<td>IEG 7007</td>
<td>Multimedia Coding &amp; Processing</td>
</tr>
<tr>
<td></td>
<td>IEG 7003</td>
<td>Network Programming &amp; System Design</td>
</tr>
<tr>
<td>3rd (May-Aug)</td>
<td>IEG 7005</td>
<td>Optical Communication &amp; Lightwave Networks</td>
</tr>
<tr>
<td>4th (Sep-Dec)</td>
<td>IEG 7004</td>
<td>Traffic Engineering, Performance Evaluation &amp; QOS</td>
</tr>
<tr>
<td></td>
<td>IEG 7006</td>
<td>System Administration &amp; Network Security</td>
</tr>
<tr>
<td>5th (Jan-Apr)</td>
<td>IEG 7002</td>
<td>Telecommunication Networks, Regulation, &amp; Practices</td>
</tr>
<tr>
<td></td>
<td>IEG 7008</td>
<td>Multimedia &amp; Distributed Networks</td>
</tr>
<tr>
<td></td>
<td>IEG 7009</td>
<td>Advanced Topics in Information Engineering</td>
</tr>
<tr>
<td>IE elective</td>
<td>IEG 7810</td>
<td>Research &amp; Development Project I</td>
</tr>
<tr>
<td></td>
<td>IEG 7820</td>
<td>Research &amp; Development Project II</td>
</tr>
</tbody>
</table>
Financial Assistance

Government Grants and Loans

Full-time students who have resided in Hong Kong for at least three years and taking programmes which are exclusively UGC-funded or exclusively publicly-funded as listed in the course coding sheet of the "Local Student Finance Scheme"* which is published by the Government Student Financial Assistance Agency, may apply for grants and loans of the Hong Kong Government. Under this scheme, grants are awarded to cover tuition fees and academic expenses while loans are for living expenses. Moreover, Non-means Tested loans are also available to both full-time and part-time students who have resided in Hong Kong for at least three years to cover tuition fees. Recipients of loans have to pay interest and are expected to repay the loans within a specified period after graduation or leaving the University.

Application forms may be obtained from the Office of Student Affairs.

* Details of eligibility would be confirmed by the Government Student Financial Assistance Agency around May every year. Enquiries can be made to the Office of Student Affairs.

University Bursaries and Loans

A limited number of bursaries and loans are available for full-time local students (taking programmes which are exclusively UGC-funded or exclusively publicly-funded) with emergency needs arising from sudden change of financial conditions. As these are in general to supplement to scheme of government grants and loans, students should apply for the government grants and loans first.

Application forms may be obtained from the Office of Student Affairs.

Postgraduate Studentships

Postgraduate Studentships are available in most Graduate Divisions for full-time students registered for research degree programmes. Students awarded studentships will receive stipends in return for assisting in the teaching and research work of the Graduate Division.