Master of Science in Electronic and Information Engineering (MSc)

Postgraduate Diploma in Electronic and Information Engineering (PgD)

With specialism study options in
“Internet of Things” and
“Multimedia Signal Processing and Communications”

New Specialism in “Internet of Things” (IoT) will be offered starting from 2018/2019

電子及資訊工程學理學碩士學位課程
電子及資訊工程學深造文憑課程
備有「物聯網」和「多媒體信號處理及通訊」專修
Why EIE PolyU?

Strong Alumni Network
Out of our 6,000+ EIE alumni, many of them are working in ICT-related fields at senior managerial positions like CEO, Vice President, and General Manager. Many alumni also further their study in top-notch universities such as Stanford University, Columbia University and Carnegie Mellon University in USA, University of Toronto in Canada, University of Zurich in Switzerland, and Nanyang Technological University in Singapore, etc.

Innovative Research with Impact
Produce cutting-edge research output which has significant impact to the society. Recent research breakthroughs include the achievement of the world’s fastest optical communications speed for data centre, development of perovskite-silicon tandem solar cells with the world’s highest power conversation efficiency, etc.

Ample Further Research Opportunities
The Department provides different research positions for students to pursue a career in research. More than 20 MSc in EIE students joined the Department as research staff or students in the last 5 years.

Superb Teaching and Learning Facilities
State-of-the-art laboratories:
- Advanced Materials and Electronics Laboratory
- Circuits Research Laboratory
- Digital Signal Processing Laboratory
- Electronics and Telecommunications Research Laboratory
- Fibre Optic System Laboratory
- Molecular Beam Epitaxy (MBE) Laboratory
- Microfabrication Laboratory
- Microscopy and Sensors Laboratory
- Microscopic Biosensor Laboratory
- PolyU-Huawei Joint Laboratory for Optical Interconnection Network and Advanced Computing System
- Renewable Energy Systems Research Laboratory
- Specialty Optical Fibre Fabrication Laboratory

World-class Professors
4 IEEE Fellows and 9 IEEE Senior Members; 10 IET/HKIE Corporate Members/Fellows and/or Chartered Engineers.

World-class Professors
4 IEEE Fellows and 9 IEEE Senior Members; 10 IET/HKIE Corporate Members/Fellows and/or Chartered Engineers.
Internet of Things (IoT) is defined as adding the connection of things to the Internet, including existing products serving their main functionalities and new products developed to serve the new IoT world. IoT is booming and more and more devices are connected to the Internet every day. The Industrial IoT draws increasing attention due to its potential application in the industry in recent years. For example, the Hong Kong Government has been using IoT sensors to improve public services. Sensors are deployed at strategic routes to collect real-time traffic data, in manholes of city storm drains to detect water levels, and inside the slopes to detect impending landslides. Moreover, there are already about 10,000 IoT sensors deployed at the Hong Kong International Terminals to help monitor and analyze passenger numbers, luggage handling, retail traffic, and even toilet usage.

IoT is transforming our world and business models. It allows everyday objects to collect and transmit data, which in turn helps companies gain new customer insights and offer new products. Academically, IoT has close connections with information technology and computer science such as computational intelligence, data communication, pattern recognition, personal networking technology, business administration including global supply chain management and quality management, health technology and informatics including bioinformatics and applications of radiation science, etc. As proposed in the Hong Kong IoT Conference 2017, IoT will be extensively applied to three major areas including Smart Living, Smart Business and Smart Healthcare; it indicates the wide coverage of IoT in everyday life.

In response to the rapid growth of IoT in terms of technologies, products and markets worldwide of which the trend is expected to continue for years to come, a new Specialism in Internet of Things will be introduced for the MSc in Electronic and Information Programme starting from the academic year 2018/2019. The new specialism will offer valuable support to both the local and non-local IoT industry by producing well-trained engineers in the related fields. The course will also provide an excellent link between physical principles and practical electronic implementation.

**Major Subject Areas:**
- Big Data
- Computational Intelligence
- Data Security
- IoT Tools and Applications
- Sensor Networks
- Vehicular Communications
- Video Technologies
- Wireless Communications
- Wireless Data Network
- Wireless Power Transfer Technologies

As there is a genuine demand for engineers equipped with up-to-date knowledge in the area of IoT in addition to the need of engineers trained with broad engineering aspects related to the electronics and information disciplines, professionals and engineers with training in IoT and related technologies are very highly sought after. There is and will continue to be a high demand for skilled people with IoT training which leads to exciting and promising careers. The graduates of this new specialism will also form a new strong force to support further development in 5G, deep learning, machine learning, and AI, etc. for this fast-growing sector.
Programme Introduction 课程简介

This programme aims at providing graduates of electronic engineering, information engineering, electrical engineering, telecommunications engineering, computer science and other related disciplines an opportunity for further study at postgraduate level. Students will embark on a broad choice of core subjects in areas such as multimedia technologies, Internet of Things (IoT), telecommunications and machine intelligence, etc. that enable them to meet new challenges and tap new opportunities in relevant fields. Students can also acquire the latest technical know-how by registering for specialized subjects in a chosen area that focus on the modern issues facing the engineering profession today. Students who have managerial responsibilities can take electives on business or management according to their interest and career needs.

Specialism in Internet of Things
The programme offers a new Specialism in Internet of Things (IoT) to cater for the emerging needs of IoT experts in the industry. This specialism covers cutting-edge technologies on wireless communications, sensor networks, and IoT applications, etc., enabling students to explore advanced knowledge and develop in the related fields.

Specialism in Multimedia Signal Processing and Communications
The specialism in Multimedia Signal Processing and Communications provides postgraduate-level professional and technical training to practitioners in the area in order to enable them to tap the ever-growing market needs and business opportunities related to multimedia technology.

Flexible Programme Structure

<table>
<thead>
<tr>
<th>Award</th>
<th>Dissertation Option</th>
<th>Non-Dissertation Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSc in Electronic and Information Engineering</td>
<td>Dissertation plus a minimum of FOUR taught subjects from the EIE core subject list and THREE elective subjects</td>
<td>A minimum of SIX subjects from the EIE core subject list and FOUR elective subjects</td>
</tr>
<tr>
<td>PgD in Electronic and Information Engineering</td>
<td>N/A</td>
<td>A minimum of FOUR subjects from the EIE core subject list and TWO elective subjects</td>
</tr>
<tr>
<td>MSc in Electronic and Information Engineering (Internet of Things)</td>
<td>Dissertation plus a minimum of FIVE taught subjects from the core subject list specified for the specialism and TWO elective subjects</td>
<td>A minimum of SEVEN subjects from the core subject list specified for the specialism and THREE elective subjects</td>
</tr>
<tr>
<td>PgD in Electronic and Information Engineering (Internet of Things)</td>
<td>N/A</td>
<td>A minimum of FIVE subjects from the core subject list specified for the specialism and ONE elective subject</td>
</tr>
<tr>
<td>MSc in Electronic and Information Engineering (Multimedia Signal Processing and Communications)</td>
<td>Dissertation plus a minimum of FIVE taught subjects from the core subject list specified for the specialism and TWO elective subjects</td>
<td>A minimum of SEVEN subjects from the core subject list specified for the specialism and THREE elective subjects.</td>
</tr>
<tr>
<td>PgD in Electronic and Information Engineering (Multimedia Signal Processing and Communications)</td>
<td>N/A</td>
<td>A minimum of FIVE subjects from the core subject list specified for the specialism and ONE elective subject</td>
</tr>
</tbody>
</table>
### General Information 課程資料

<table>
<thead>
<tr>
<th>Host Department 主辦學系</th>
<th>Department of Electronic and Information Engineering (EIE) 電子及資訊工程學系</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode of Study 修讀模式</td>
<td>Mixed mode 混合修讀模式</td>
</tr>
</tbody>
</table>

Classes are normally held on weekday evenings. Some classes may be held during the daytime on weekdays and weekends. A mixed-mode programme gives you an option to engage in a full-time (9 credits or more per semester) or part-time study load (less than 9 credits per semester).

本學位課程一般安排於平日（星期一至五）晚上上課，部份課堂會於平日及週末日間進行。「混合修讀模式」讓學員可選擇全日制（每個學期修讀9個學分或以上）或兼讀形式上課（每個學期修讀少於9個學分）。

<table>
<thead>
<tr>
<th>Duration of Study 修讀期</th>
<th>Normal Study Duration 一般修讀期</th>
<th>1 to 2.5 years 一年至兩年半</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maximum Study Period 最長修讀期</td>
<td>5 years 五年</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Programme Structure 課程模式</th>
<th>Credit-based 學分制</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Total Credits for Graduation 畢業學分</th>
<th>30 credits for MSc, 18 credits for PgD 碩士學位課程需完成30學分 深造文憑課程需完成18學分</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Tuition Fee 學費</th>
<th>HK$3,500 per credit for local students 本地學生每學分為港幣3,500元 HK$4,300 per credit for non-local students 非本地學生每學分為港幣4,300元</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Outstanding Graduates Scholarships by the Faculty of Engineering 工程學院優異畢業生獎學金</th>
<th>Scholarships would be awarded to outstanding graduates from the programme. 學業成績優異之畢業生可獲工程學院的獎學金。</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>EIE Alumni Scholarship 學系校友獎學金</th>
<th>EIE graduates fulfilling the Scholarship selection criteria will be awarded a Scholarship of an amount equivalent to 15% of the tuition fee paid for the relevant subject. 本系校友若符合「校友獎學金」遴選資格，可獲相當於有關科目學費百分之十五的獎學金。</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>EIE Alumni Sponsorship Scheme 學系校友資助計劃</th>
<th>EIE graduates enrolling as a subject-based student will each be offered a Sponsorship covering half of the tuition fee for not more than one subject each academic year. 以科目制註冊之本系校友可申請「校友資助計劃」，於每學年獲取其中一個科目之半費資助。</th>
</tr>
</thead>
</table>
The Department has set up Studentships for students with good academic performance and potential to pursue the MSc dissertation and research work at the same time. Students being awarded the Studentship will receive a monthly support of HK$6,000 for a period of 12 months to do the MSc dissertation and carry out research project work simultaneously under the same supervisor in the capacity of a part-time Research Assistant.

http://www.eie.polyu.edu.hk/prog/msc/msc7_1.htm
Broad Coverage of Technical Areas

EIE509 Satellite Communications - Technology and Applications
EIE511 VLSI System Design
EIE522 Pattern Recognition: Theory & Applications
EIE529 Digital Image Processing
EIE546 Video Technology
EIE552 Internet Technologies for Multimedia Applications
EIE553 Security in Data Communication
EIE557 Computational Intelligence and its Applications
EIE558 Speech Processing and Recognition
EIE563 Digital Audio Processing
EIE566 Wireless Communications
EIE567 Wireless Power Transfer Technologies
EIE568 IoT - Tools and Applications
EIE569 Sensor Networks
EIE575 Vehicular Communications and Inter-Networking Technologies
EIE577 Optoelectronic Devices
EIE579 Advanced Telecommunication Systems
EIE580 Radio Frequency and Microwave Integrated Circuits for Communication System Applications
EIE581 Optical Wavelength Division Multiplexing Networks
EIE583 Advanced Power Semiconductor Devices and Design Criteria for Applications
EIE585 OFDM & MIMO Wireless Communications
EIE587 Channel Coding
EIE589 Wireless Data Network
COMPS434 Big Data Computing

* Around 14 of the above subjects will be offered each year.

<table>
<thead>
<tr>
<th>Award Title</th>
<th>Core Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSc/PgD in Electronic and Information Engineering</td>
<td>EIE509 EIE511 EIE522 EIE529 EIE546 EIE552 EIE553 EIE557 EIE563 EIE566 EIE567 EIE575 EIE577 EIE579 EIE580</td>
</tr>
<tr>
<td>MSc/PgD in Electronic and Information Engineering (Internet of Things)</td>
<td>EIE546 EIE553 EIE557 EIE566 EIE567 EIE580</td>
</tr>
<tr>
<td>MSc/PgD in Electronic and Information Engineering (Multimedia Signal Processing and Communications)</td>
<td>EIE522 EIE529 EIE546 EIE552 EIE553 EIE557 EIE558 EIE563 EIE566 EIE575 EIE577 EIE580</td>
</tr>
</tbody>
</table>
Preparing Yourself for Career Advancement in the Profession

Application Period
Year round. The main round of application for September entry falls between October and April of the next year.

Entrance Requirements
An honours degree in engineering, science, technology, or Chartered Engineer (CEng), or equivalent qualification.

Programme Coordinator
Professor Chao Lu
Telephone : 2766 6281
Email : chao.lu@polyu.edu.hk

General Enquiry
Miss Rebecca O
Telephone : 2766 6226
Email : rebecca.o@polyu.edu.hk

Ms Carol Yuen
Telephone : 2766 4184
Email : carol.yuen@polyu.edu.hk

Website: http://www.eie.polyu.edu.hk/mscinfo

Programme Features
• Application-oriented and practical curriculum addressing latest technologies and their applications
• Modern and flexible teaching approach with some subjects delivered in a workshop mode
• Teaching conducted by eminent international and local experts
• Emphasize interactive and student-centred learning
• Authentic and work-related assessments allowing students to fully demonstrate their competence

Study at Your Own Pace and Choice on Subject-based
If you are interested in pursuing further education but would prefer registering as a candidate for the MSc award at a later stage, you may take any MSc subject at your own choice in the capacity of a subject-based student. With this subject-based enrolment, you will enjoy the flexibility of enrolling in our MSc subjects according to your own pace and interests.