

# Department of Electrical Engineering



(Options: BEng Computer and Data Engineering, BEng Electronic and Electrical Engineering, BEng Information Engineering, BEng Microelectronics Engineering)

## Our Majors

- Common first year
- Students choose a major after one year of study
- Majors offered:
  - BEng in Computer and Data Engineering (CDE)  
工學士(電子計算機及數據工程學)
  - BEng in Electronic and Electrical Engineering (ELEL)  
工學士(電子及電機工程學)
  - BEng in Information Engineering (INFE)  
工學士(資訊工程學)
  - BEng in Microelectronics Engineering (MEE)  
工學士(微電子工程學)

## Program Highlights

### CDE - Computer and Data Engineering

- Hardware and Software Design 電腦硬件及軟件設計
- Data Analytics and Security 數據分析及安全
- Cloud Computing Systems 雲端運算系統
- Machine Learning 機器學習
- Control and Internet of Things 控制與物聯網

### ELEL- Electronic and Electrical Engineering

- Wireless Communications and Data Technology 無線通訊及數據技術
- Microwave, Terahertz and Optical Technologies 微波、太赫茲及光學科技
- Photonic, Electronic and Sensor Devices 光電子及電子器件、感應器
- Smart Control and Electrical Power Systems 智能管理及電機能源系統
- Bioelectronics and Bioinformatics 生物電子及生物信息技術

### INFE - Information Engineering

- Networking and Communications 網絡及通訊
- Algorithms and Optimization 算法與優化
- Cybersecurity 網絡安全
- Artificial Intelligence 人工智能
- Signal Processing 訊號處理

### MEE - Microelectronics Engineering

- Application specific Integrated Circuits (ASIC) 專業集成電路
- Nanotechnology and Microsystems 納米技術及微型系統
- New Materials for IC 晶片新材料
- Digital Processor 數字電路處理器
- System-on-Chip 單晶片系統

## Job Opportunities

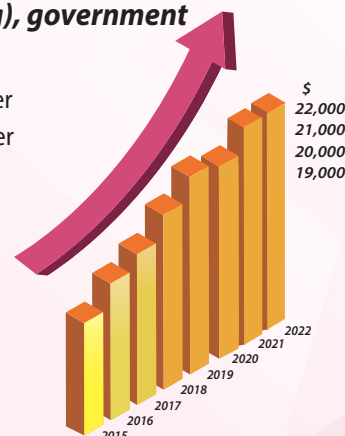
**Engineering companies, telecommunications, major utilities (CLP, PCCW)**

- Engineer (Computer/Technical Support/Telecommunication/Electronic/Electrical/Hardware)
- Scientific Consultant/Technologist

**Banking & financial institutions, software and IT companies, transportation (airlines, shipping), government**

- IT Specialist/Network Administrator
- Analyst/Programmer/Software Engineer
- Application Developer/Game Developer

## Salary Trend (2015 – 2022 graduates)



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## Entrance Requirements

### HKDSE JUPAS Applicants

Students will apply for admission to the Department of Electrical Engineering (JS 1205) and enter a major after one year of study.

#### Entrance Requirements and Levels

Eng. Lang.	Chi. Lang.	Maths.	Citizenship and Social Development	Elective 1	Elective 2
Level 3	Level 3	Level 3	Attained	Level 3 any one of specified subjects (Notes)	Level 3 any one subject (Notes)

#### Notes:

- Specified subjects under Elective 1 include M1-Calculus and Statistics/M2-Algebra and Calculus, Information and Communication Technology, Physics, Chemistry and Biology.
- More details about entrance requirements are available at: <https://www.cityu.edu.hk/admo/admissions/jupas-admission>.



#### Other Considerations

- When considering the priority list of student applicants, we mainly consider subject results obtained in current and past two years.

### Direct / Non-JUPAS Applicants

• **Associate Degree (AD) / Higher Diploma (HD) graduates or final year students** of programme recognized by the University may apply for admission to major programmes with Advanced Standing (Year 2 or Year 3). Applicants are normally expected to have completed the AD/HD with a CGPA of  $\geq 3.0$ , or an equivalent overall mark or a credit award. More details at: <https://www.cityu.edu.hk/admo/admissions/non-jupas-senior-year-admission>.

• **Other high school qualifications**, e.g. GCE, IB, overseas, AD/HD Year 1 students, may apply to enter Year 1. More details at: <https://www.cityu.edu.hk/admo/admissions/non-jupas-year-1-admission>.

• Admission Information for **Non-local applicants** is available at <https://www.cityu.edu.hk/admo/admissions>.



## Graduate Career Outlook

Reinforce traditional advantages  
Develop emerging industries



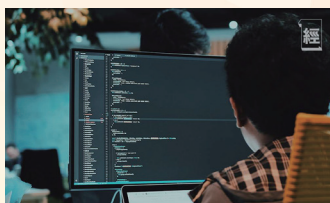
- Enhance competitiveness in financial services by facilitating large-scale advanced technology enterprises to list in Main Board, promoting the launch of more Renminbi-denominated investment tools, strengthening mutual market access, developing green and sustainable finance, etc.
- Promote innovation and technology (I&T) development
  - Facilitate commercialisation of research and development (R&D) outcomes
  - Attract 100 high-potential I&T enterprises to set up operations in Hong Kong in next five years, including at least 20 top-notch I&T enterprises
  - Set up the \$10 billion "Research, Academic and Industry Sectors One-plus Scheme" (RAIS+ Scheme) to support commercialisation of R&D outcomes by university research teams
  - Enhance existing technology talent schemes and build more accommodation facilities for I&T talents
  - Create the post of Commissioner for Industry to be responsible for co-ordinating and steering re-industrialisation strategies
  - Press ahead with construction of the Hong Kong-Shenzhen Innovation and Technology Park in the Lok Ma Chau Loop and development of San Tin Technopole

Source: The Chief Executive's 2022 Policy Address

### 《薪酬調查》IT界嚴重缺人！未來5年大幅加薪招攬10萬新血

資訊科技及數碼人才龍頭公司Venturenix日前公布2022年薪酬指南，指本港IT界面對疫情及經濟下行衝擊，仍持續渴求人才，人才空缺以驚人速度增長，香港未來5年將需要額外約10萬名人才轉型...Venturenix認為香港企業需要加強職業培訓，並培養足夠人才，同時鼓勵員工從傳統行業投身IT界，方可紓緩IT人才荒的問題...IT界別受移民潮（本地人才外移）及更多企業採取數碼化策略（傳統及初創公司開設更多新職位）影響下，人手越見緊張，認為業界及政府需提供誘因鼓勵大學生及職場中有意轉換跑道人士接受職前培訓，為業界提供新血。

來源：2022年5月25日《經濟一週》



Entrance Scholarships  
for Local Students



## Department's Highlights

- Largest EE department among local universities with 46 professors
- Ranked 20<sup>th</sup> worldwide and 1<sup>st</sup> in Hong Kong in Electrical and Electronic Engineering (U.S. News Best Global Universities Rankings 2023); 16<sup>th</sup> worldwide and 1<sup>st</sup> in Hong Kong in Electrical Engineering (Performance Ranking of Scientific Papers for World Universities 2022 by National Taiwan University)
- The department boasts 2 Fellows of the Royal Academy of Engineering (UK), 1 Fellow of the World Academy of Sciences, 25 faculty listed as top 2% of world's most highly cited scientists, 15 IEEE Fellows, 6 IEEE Society Award Winners, and 2 Croucher Foundation Senior Research Fellows
- Six EE professors have been awarded the Teaching Excellence Award by the University
- A caring department emphasizing students' well-roundedness apart from their technical know-how through ample co-curricular activities – Student Tutoring Scheme, Honor Society, Student Exchange, Internships, Study Tours, Softskill and Career Advising Workshops
- Offering four undergraduate major programmes, two taught master programmes, and two research degree programmes (approx. 1,400 students)
- With the support from the Ministry of Science and Technology, State Key Laboratory of Terahertz and Millimeter Waves established in 2008 is the first such laboratory in engineering discipline in Hong Kong
- Laboratory space about 5,000 sq. meters



Department of  
Electrical Engineering

香港城市大學  
City University of Hong Kong


JS1205


# Department of Electrical Engineering 電機工程學系

Bachelor of Engineering in  
Microelectronics Engineering  
工學士(微電子工程學)



## DEPARTMENT HIGHLIGHTS

**Ranked 20<sup>th</sup> worldwide and 1<sup>st</sup> in Hong Kong** by subject in **Electrical and Electronic Engineering** according to U.S. News and World Report Best Global Universities Rankings 2023; **16<sup>th</sup> worldwide and 1<sup>st</sup> in Hong Kong in Electrical Engineering, Performance Ranking** of Scientific Papers for World Universities by National Taiwan University Ranking 2022; Home to 2 Fellows of the Royal Academy of Engineering (UK), 1 Fellow of the World Academy of Sciences, 25 faculty listed as top 2% of world's most highly cited scientists, 15 Fellows of the Institute of Electrical and Electronics Engineers, USA (IEEE), 6 IEEE Society Award Winners, and 2 Croucher Foundation Senior Research Fellows.

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Application  
Specific  
Integrated Circuits  
(ASIC)  
專業集成電路

Nanotechnology,  
Microsystems  
納米技術、  
微型系統

New Materials  
for IC  
晶片新材料

Digital  
Processor  
數字電路  
處理器

System-on-Chip  
單晶片系統



## AIM

The aims of this major are to **educate students in microelectronics technologies**, and to **prepare graduates** with the necessary knowledge, skills and understanding **to pursue careers as professional engineers** in semiconductor and related fields. The contents covered contain sufficient **breadth** to allow graduates to **work across boundaries**, and sufficient **depth** to equip and prepare them well for **employment and postgraduate studies**. Through this programme, our graduates will also gain the ability and vision that will enable them to become independent life-long learners in this rapidly changing high-tech industry.



## CURRICULUM HIGHLIGHTS

- **Application Specific Integrated Circuit (ASIC) design** for applications, such as consumer products, communication equipment, medical device, industrial applications, etc.
- **Nanotechnologies for high performance devices and microsystems**, and
- **New technologies and materials for Integrated Circuits (ICs)**.

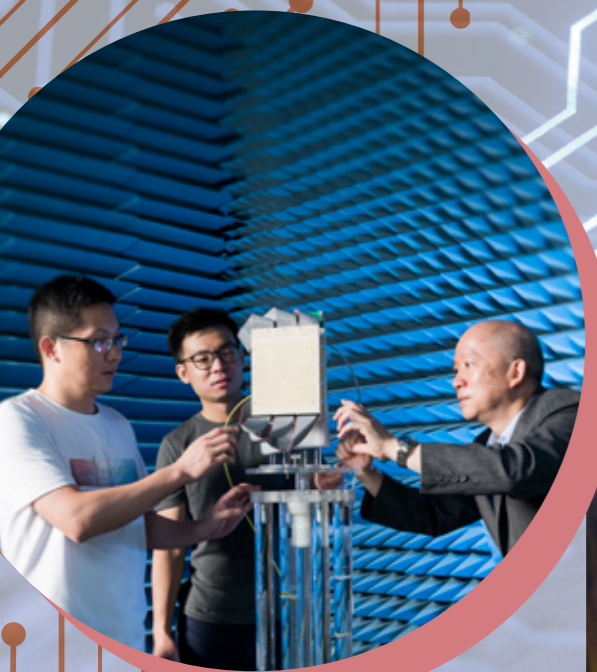
## ACCREDITATION

The major is intended to seek accreditation by the **Hong Kong Institution of Engineers (HKIE – 香港工程師學會)** in disciplines of **Electronics (ENS)**; and **Control, Automation & Instrumentation (CAI)**. This is one of the educational requirements for obtaining Charter status. Based on the Washington Accord, **graduates of accredited programme will receive reciprocal recognition from equivalent bodies** in Australia, Canada, China, Chinese Taipei, Costa Rica, Hong Kong-China, India, Indonesia, Ireland, Japan, Korea, Malaysia, Mexico, New Zealand, Pakistan, Peru, Russia, Singapore, South Africa, Sri Lanka, Turkey, the United Kingdom and the United States.



## CAREER PROSPECTS

Graduates of the programme can pursue an **exciting suite of career opportunities** involving the **design and production of microelectronics** and related technologies, in **Hong Kong** and in the **Greater Bay Area**. Hong Kong is home to leading companies in Integrated Circuit (IC) design and technology including **Huawei, AMASIC, UMEC, REDISH, Infineon, and Solomon Systech**. These companies and others constitute a **strong demand for microelectronic engineers** amid the strong global market for ICs. The emergence of Hong Kong as a **technological hub in the Greater Bay Area** further accentuates this workforce demand. **Across the border** in Shenzhen, there is also **huge demand on well-trained IC engineers**. Beyond employment as microelectronic engineers, graduates of this programme are also well prepared for a wide range of careers available to electrical and electronic engineers.





## CO-CURRICULAR ACTIVITIES

### Company Internships

In collaboration with industry, the Department offers **internship schemes of various lengths (from 3 months to one year)** to better prepare students for work upon graduation. Students are connected to prominent industrial and business leaders and 80-100 places are secured yearly. Some companies include Huawei, Sensetime, ASM Technology, Sengital, M-Lab, Lexiwave, SUGA Electronics and Compass Technology.

### Global Outreach

Uplifting students' global outreach and international competitiveness through student exchange is one of the Department's goals. **Since 2015, more than 340 students have been sent out to top universities** in countries including **Australia, Canada, France, Japan, Korea, the United Kingdom, the United States** and many others, for semester-long and/or summer exchange. In addition, the **Overseas Internship Scheme (OIS)** provides overseas internship opportunities to 30-40 students every year.

### Student Activities

Students learn both inside and outside the classroom, and engineers grow by experience. The department provides **ample extracurricular opportunities** such as undergraduate student research opportunities, academic, technical and entrepreneurial student competitions, student tutoring schemes, technical and soft-skill workshops and student societies. Through these opportunities students apply technical knowledge, hone their communication skills, find their passions, make life-long connections and, in some cases, launch their careers.

