Master of Science (MSc) in Energy and Environment

Programme Information

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Associate Professor, School of Energy and Environment, City University of Hong Kong
Energy demand

~75% of energy comes from fossil fuel

Problems

Sustainability
Pollution
Climate change
Energy sustainability

Energy demand $\uparrow$, but supply $\downarrow$

Requires development of renewable energies
Effect of energy usage: pollution

- **CO₂**
- **CH₄**
Consequences on global temperature

1°C increase in last century

Future predictions
Climate change
Climate change
Urgent Energy and Environment Issues

Energy generation and consumption

Environmental pollution and climate

An Inconvenient Truth!
World’s biggest challenges

Need **professionals** to lead the world in solving energy and environmental issues, through research, policy making, applications and education, ESG, etc.

The **first and only** academic programme in Hong Kong that focuses on both energy and environment.
Programme at SEE

Master of Science (MSc) in Energy and Environment

理學碩士(能源及環境)

One-year full time self-financed programme
Two-year combined time self-financed programme

For students intending to work in companies after graduation
Or to gain more knowledge for current employment
Curriculum Design

Emphasis on both engineering and soft science
With references to current events and news

Global warming/climate change
Sustainability development

Energy & Environment

CO₂ emission

Economics
Law
Policy
technologies
efficiency
climate
pollution
Curriculum Design

MSc course requirements: 30 credit units

Plan A:
5 core courses
5 electives

Plan B:
5 core courses
3 electives
Dissertation (≈2 courses)

Duration:
Full-time
1 year (Max. 2.5 years)

Part-time
2 years (Max. 5 years)

Focus:
address issues of climate change, air pollution, energy savings/efficiency, renewable energies, energy and environment economics, etc.
5 core courses (必修科目)

- Energy Generation and Storage Systems
- Energy Efficiency and Conservation Technologies
- Environmental Pollution: Theories, Measurement and Mitigation
- Data Analysis in Environmental Applications
- Environmental and Energy Policy

Science and technology + knowledge sets in management
Electives

- Advanced Thermosciences for Energy Engineering
- Emerging Energy Technologies
- Experimental Techniques in Energy and Environment
- Energy, Environment and Sustainable Development
- Energy and Environmental Economics
- Energy and Environmental Law
- Environmental Modelling
- Gas Engineering – Theories and Practices
- Dissertation*

- Air Pollution and Atmospheric Chemistry
- Building Performance Assessment
- Carbon Audit and Management
- Climate Change: Science, Adaptation and Mitigation
- Ecosystem and Environmental Toxicology
- Environmental Assessment
- Environmental Chemistry and Physics
- Solid Waste Treatment and Management
SEE6999 Dissertation (專題論文)

- Credit Units: 6 (2 semesters)
- Independent research and development work, topic to be determined by student and a professor
- Aim: to develop expertise in a chosen subject area through the application of theories and techniques taught in the programme.

Examples of previous dissertation topics (full list):
- Developing a smart bus distribution model for improving Hong Kong roadside air quality
- Research on the synoptic weather pattern of extreme temperature in Macao
- Photocatalytic Water Splitting Over Quantum Dot-Sensitised Titanium-Graphene Nanoassemblies
- Waste to Energy – A sustainable Solution to Municipal Solid Waste Management in Hong Kong
- Turning carbon dioxide into fuel: computational study of catalytic CO2 reduction
- Energy Efficiency and Thermodynamic Analysis of Advanced Oil Free Magnetic Bearing Chiller System
Route to becoming a Chartered Engineer (CEng)

MSc Degree accredited by IGEM (Institute of Gas Engineers and Managers) and CIWEM (Chartered Institution of Water and Environmental Management) from United Kingdom

IGEM is a chartered professional body licensed by the UK Engineering Council (EC).

CIWEM is the leading international Royal Chartered professional body dedicated to the water and environment sector.

Graduates partially satisfies academic requirement for IGEM & CIWEM membership*. If graduate works for gas industry/ water and environment fields in the future (i.e., equivalent professional experience), he/she only requires a professional examination to become Chartered Engineer (CEng), UK

* with an accredited BEng/BSc Degree from any of Washington Accord's 19 Signatories

⇒ Can then become member of HKIE through reciprocal recognition agreement

Modes of teaching

Lectures
Tutorial
Homework assignment
Readings
Group project
Presentation
In-class discussion
Experiments/demo
Field trips
Tests/Exams
Etc.

Language of instruction: English

Typical course schedule: Weekdays 7-10pm
Field Trips - EcoPark
Field Trips - Zero Carbon Building
Field Trips - ASB Biodiesel Plant
Field Trips - T Park
Field Trips - CLP ElectriCity
Field Trips - International Commerce Centre
Visit to Organic Farm
Number of MSc Graduates

No. of MSc students graduated

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<tbody>
<tr>
<td>Number</td>
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<td>50</td>
<td>78</td>
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Job placement of graduates

Current career status of MSc graduates

- Full-time Employment: 75%
- Further studies (PhD): 4%
- Seeking employment: 21%

Range of employment sectors

- Community, Social & Personal Services: 6%
- Education: 15%
- Engineering, Architectural & Technical Services: 6%
- Financial / Insurance: 9%
- Manufacturing: 6%
- Transport, Storage & Communications: 61%
Ties with external companies and organizations

- Energy providers/systems
- Transportation companies
- Environmental companies
- Construction/building companies
- Energy/environmental consultants
- Government organization
- Non-profit organizations, etc.

Companies/organizations that have ties with our school
<table>
<thead>
<tr>
<th>Role</th>
<th>Group</th>
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</thead>
<tbody>
<tr>
<td>Managers</td>
<td>Environmental/sustainability managers and employees in manufacturing, construction, private sectors, etc.</td>
</tr>
<tr>
<td>Employees</td>
<td>Government, NGO officials</td>
</tr>
<tr>
<td>Officials</td>
<td>Educators</td>
</tr>
<tr>
<td>Teachers</td>
<td>Engineers from different fields interested in energy and environment</td>
</tr>
<tr>
<td>New graduates</td>
<td></td>
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</tbody>
</table>
Entrance requirements for MSc

Applicants with an undergraduate degree in sciences or engineering; OR Applicants with a degree in other disciplines but with Hong Kong A-level Physics (or equivalent) or sufficient working experience in the related fields (to be considered on a case by case basis).

Additional English proficiency requirements for applicants from an institution where the medium of instruction is not English

TOEFL@# score 550 (paper-based test) or 79 (internet-based test); or overall banding 6.5 in International English Language Testing System (IELTS)@; or score 450 in the new College English Test (CET6) of Chinese mainland or a pass in the old CET-6 test; or other equivalent qualifications.

@TOEFL and IELTS scores are considered valid for two years. Applicants are required to provide their English test results obtained within the two years preceding the commencement of the University’s application period.
Why should you choose our programme?

The 4Ps

Programme

Place

People

Price
Why should you choose our programme?

Programme

HKU
MSc Energy Engineering
MSc Environmental Engineering

HKUST
MSc Environmental Engineering and Management
MSc Environmental Health and Safety

PolyU
MSc Environmental Management and Engineering

HKBU
MSc Environmental and Public Health Management
MSc Green Technology (Energy)

CityU
MSc Energy and Environment

Multidisciplinary
• Encompass both aspects
• Emphasize close ties between 2 disciplines

More breath compared to other programme in HK
Why should you choose our programme?

Place

Kowloon Tong

Centralized, convenient, main intersection of major transport network

City University main campus
Kowloon Tong
Why should you choose our programme?

People

High calibra professors from top university in the world, for example
Application

To Apply
Please click the following link:
http://www.sgs.cityu.edu.hk/prospective/apply/notestpg
Application will be closed by 31 March 2023 (non-local)
by 31 May 2023 (local)

Enquiry
Tel: 3442 2414 / 3442 7496
Email: see.enquiry@cityu.edu.hk

School of Energy and Environment
https://www.cityu.edu.hk/see/programmes/master-science-energy-and-environment

Programme information
https://www.cityu.edu.hk/pg/programme/p63
Application for Admission as Visiting Postgraduate Student

For prospective students who wish to try one or two selected course(s) before pursuing a full programme of study at the University. Please visit SGS website for details.

<table>
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<tr>
<th>Type</th>
<th>Lectures, tutorials &amp; seminars</th>
<th>Coursework &amp; Exam (if applicable)</th>
<th>Type of Cert</th>
<th>Credit Units</th>
<th>Tuition Fees</th>
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<tbody>
<tr>
<td>Regular Registration Mode</td>
<td>Required</td>
<td>Required</td>
<td>Cert of Completion</td>
<td>Earned^*</td>
<td>Yes</td>
</tr>
<tr>
<td>Auditing Mode</td>
<td>Required</td>
<td>NOT required</td>
<td>Cert of Attendance</td>
<td>NOT earned</td>
<td>Yes</td>
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</table>

^ Upon successful completion of the course and fulfilment of specific requirements set by the School.
* Credit transfer is possible but it should be limited to a maximum of 30% of the total credit units for the award being pursued and grades from the transferred credits obtained through visiting postgraduate studies may be counted in the calculation of a student's GPA.

**Important Note:**
Visiting students will only be admitted if the relevant School/Department is satisfied with their academic suitability for the course(s) applied for, and if there are places available on the course(s). Acceptance as a visiting student does not guarantee subsequent admission to a specific programme.
City University of Hong Kong

Ranked 54th in the 2022 QS World University Rankings
Ranked 4th in the world's top 50 universities under 50 years of age
Ranked 89th in the 2022 QS Graduate Employability Rankings

- Combined Chinese-Western cultures
- English-speaking environment
- International metropolis
- Excellent academic standards
- Close to home
- 1 year master programme
- 4 year PhD programme

For more information:
http://www.cityu.edu.hk/see

Email: see.enquiry@cityu.edu.hk
Who should take this programme?

If you want to solve world’s energy and environmental problems

If you want to solve local energy and environmental problems

If you need further knowledge on energy and environment for your work

If you want to get a job in the new and exciting field of energy and environment

Even if you just want to learn about energy and environment
The first and only academic programme in Hong Kong that focuses on both energy and environment

To train high-calibre professionals and students to lead the world in solving energy and environmental issues, through research, policy making, applications and education, etc.
Q & A

Contact
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