



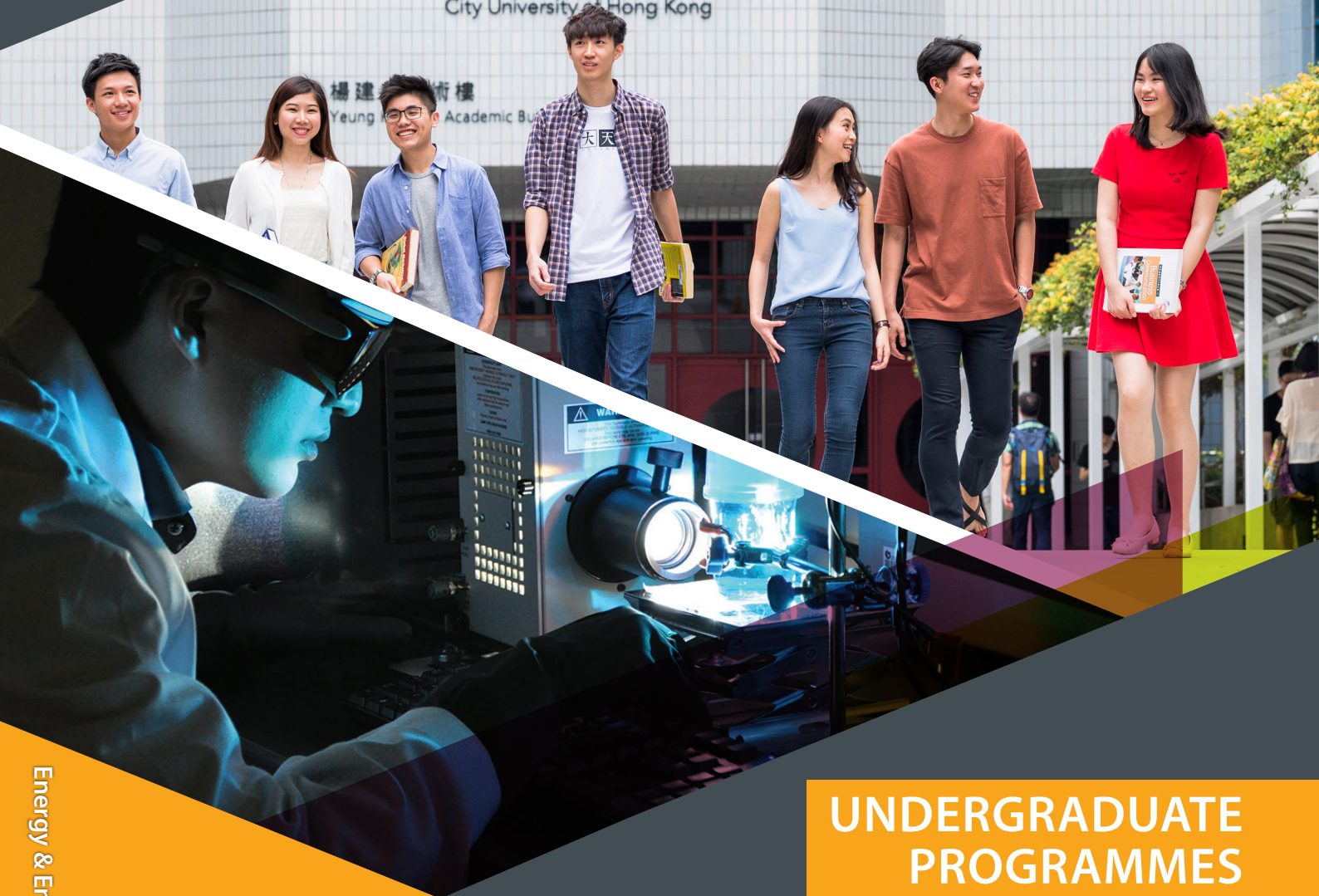
School of Energy and Environment

香港城市大學
City University of Hong Kong



香港城市大學
City University of Hong Kong

楊建業學術樓
Yeung Academic Building



UNDERGRADUATE
PROGRAMMES

School of Energy & Environment

First in Hong Kong

With cutting-edge research and professional education in
energy and environment

Energy & Environment – The Grand Challenge

Scan to know more



Introduction

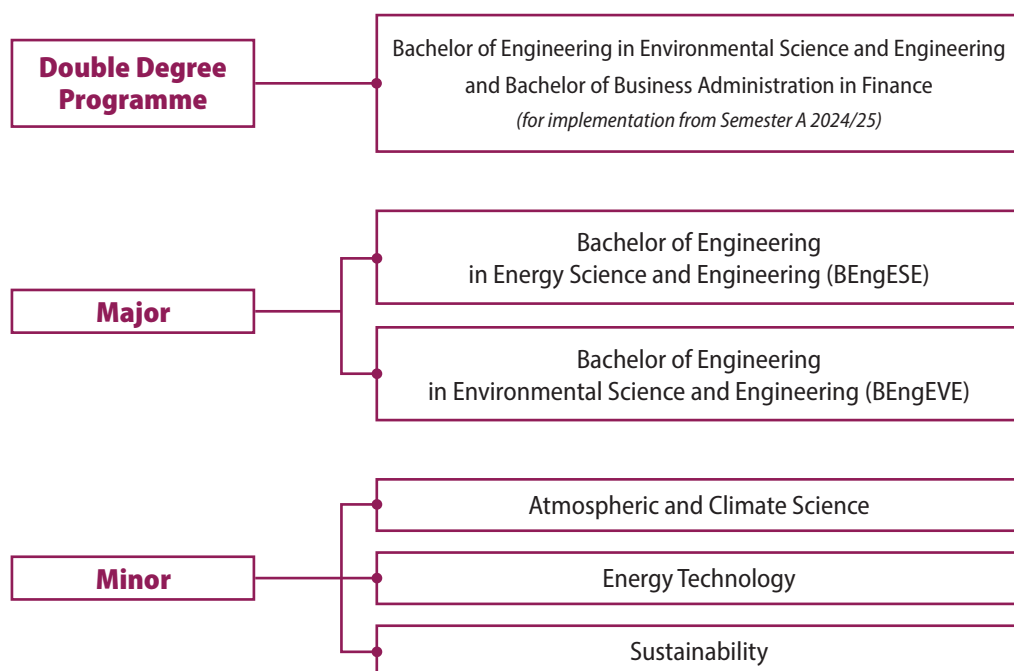
The School of Energy and Environment (SEE) - the first in Hong Kong - was founded in July 2009 with the mission to perform cutting-edge research and provide professional education in energy- and environment-related issues. SEE is designed to tackle interactive relationship between energy and environment through the development of new scientific understanding and new technologies as well as the training of new professionals with broad knowledge in the areas of energy and environment.

We have a highly internationalised and experienced faculty from various countries specialising in atmospheric and climate science, biological science, chemistry, chemical engineering, energy economics, environmental engineering, environmental policy, mechanical engineering and materials science.

Together we will nurture a new breed of engineers and professionals capable of solving energy and environmental problems.



Academic Programmes



Energy/Environment in Science, Technology & Advanced Research (eSTAR)

“Energy/Environment in Science, Technology & Advanced Research (eSTAR)” is a stream introduced in our two existing undergraduate programmes, i.e., BEngESE and BEngEVE, for implementation since Semester A 2021/22, applicable to normative 4-year degree students of the 2020/21 entry and thereafter. With the introduction of the stream, it is expected that students will be equipped with cutting-edge skills and knowledge in emerging fields.

For details, please refer to the page at <https://www.cityu.edu.hk/see/programmes/undergraduate/programmes/eSTAR>



Accreditation

- Bachelor of Engineering in Energy Science and Engineering (BEngESE) is accredited by The Hong Kong Institution of Engineers (HKIE) meeting the academic requirement for HKIE Corporate Membership in both the energy and environmental disciplines.
- Bachelor of Engineering in Environmental Science and Engineering (BEngEVE) is accredited by HKIE in the environmental discipline.
- Both BEngESE and BEngEVE students who have additionally completed a series of optional electives can apply to be a HKIE member in the Building Services (BSS) discipline.

Remarks from the Industry

Ir Paul W Y Poon, Vice Chancellor of CLP Academy, CLP Power Hong Kong Limited says the electrical and energy industry are keen for talents. "The undergraduate degree programme, Bachelor of Engineering in Energy Science and Engineering, offered by the SEE of CityU will nurture a new breed of professionals with diverse skills for the electrical and energy industry, which is important for the healthy development of our industry," he says.

Mr. C T Wan, Former Managing Director of HK Electric remarks, "The graduates of the undergraduate degree programme, Bachelor of Engineering in Energy Science and Engineering, offered by the SEE of CityU are capable of contributing innovative solutions to the governments, industrial and business sectors in the aspects of energy policy, energy management, research and development with all-round knowledge in energy. They will even be involved in providing new and feasible proposals of affordable and clean energy."

Ir Dr. Otto Poon, Chairman of ATAL Engineering Group comments, "With energy and environment high on the national and local agenda, it is most timely for SEE of CityU to host an undergraduate degree programme of Bachelor of Engineering in Energy Science and Engineering. This programme provides the much needed education to the young energy and environmental professionals for the sustainable development of Hong Kong."

Ir Colin Chung, Managing Director of WSP points out, "The Bachelor of Engineering in Environmental Science and Engineering provides a good training for the students to gain fundamental principles and practical knowledge in environmental engineering for their future development in the industry. The curriculum is unique in Hong Kong and tailor-made to the sustainable development of the environmental engineering industry locally and internationally."

Career Development

Career Prospects – BEngESE



Energy Engineering (Public Sector)

- Government (EPD, EMSD)
- Transportation
- Utilities



Energy Engineering (Private Sector)

- Consultancy
- Construction Companies
- Energy Service
- Manufacturing Industries
- Property Management Companies
- Real Estate Developers



Investment / Banking

- Environmental Social Governance (ESG)
- Green Finance



NGO

- Advisors of Energy-related Policies, Trends and Activities



Research & Development

- Technologies on Energy Generation, Storage, Efficiency and Conservation

Career Prospects – BEngEVE



Environmental / Sustainability Engineering (Public Sector)

- Government (EPD, WSD)
- Transportation



Environmental Consulting / Engineering

- Consultancy
- Construction Companies
- Manufacturing Industries
- Property Management Companies
- Real Estate Developers



Investment / Banking

- Environmental Social Governance (ESG)
- Green Finance




NGO

- Advisors of Environmental and Sustainability-related Policies, Trends and Activities



Research & Development

- Technologies on Pollution Prevention, Control, Treatment and Remediation



Bachelor of Engineering in Energy Science and Engineering

工學士 (能源科學及工程學)

Level of Study: Bachelor's Degree

Normal Period of Study: 4 years

Aims of the Major

To create a new generation of intellects/graduates capable of discovering and providing innovative solutions to the intricate issues of energy crisis, renewable energy, global warming, climate change and pollution.

Courses under Major Requirement

Basic Core Courses

- Chemical Sciences for Energy and Environmental Engineers
- Electromagnetic Principles for Energy Engineers
- Engineering Thermofluids I
- Fundamentals of Environmental Engineering
- Introduction to Energy and Environmental Data Analysis
- Mathematical Methods for Engineering

Major Core Courses

- Climate Change and Adaptation Strategies
- Energy and Environmental Engineering Laboratory
- Energy and Environmental Policy
- Energy Efficiency for Buildings
- Engineering Thermofluids II
- Engineers in Society
- Environmental Impact Assessment for Sustainable Development
- Final Year Project
- Power Plant Engineering
- Project Management
- Sustainable and Renewable Energy
- Sustainable Engineering Systems: Modelling and Analysis
- Waste and Wastewater Treatment Engineering

Electives

- Atmospheric Chemistry
- Atmospheric Science - An Introductory Survey
- Bioenergy Engineering: Principles and Applications
- Chemical Separations for Energy and Environmental Applications
- Combustion and Air Pollution Control
- Data Mining
- Design of Smart Cities and Sustainable Building
- Electrical Energy Conversion
- Energy and Carbon Auditing
- Energy Catalysis and Reaction Engineering
- Environmental Social Governance
- Gas Engineering
- Materials Engineering for Energy Applications
- Measurements of Air Pollutants
- Nanotechnology in Energy Conversion and Storage: Concepts and Creative Science
- Solar Energy Engineering
- Urban Sustainability
- Water and Water Resource Engineering
- Wind and Marine Energy

Optional Electives

- Electrical Services
- Fire Engineering and Piped Services
- Fire Science and Modelling
- HVAC Engineering
- Power Electronics and Smart Lighting Controls



Bachelor of Engineering in Environmental Science and Engineering

工學士 (環境科學及工程學)

Level of Study: Bachelor's Degree

Normal Period of Study: 4 years

Aims of the Major

To train students to be knowledgeable in environmental science and engineering so that they can work as environmental professionals to improve environmental performance and sustainability.

Courses under Major Requirement

Basic Core Courses

- Chemical Sciences for Energy and Environmental Engineers
- Engineering Thermofluids I
- Fundamentals of Environmental Engineering
- Introduction to Energy and Environmental Data Analysis
- Mathematical Methods for Engineering
- Principles of Analytical Chemistry

Major Core Courses

- Air Pollution
- Climate Change and Adaptation Strategies
- Engineering Thermofluids II
- Engineers in Society
- Environmental Engineering Laboratory
- Environmental Impact Assessment for Sustainable Development
- Environmental Systems Modelling
- Environmental, Safety, and Occupational Health Management
- Final Year Project
- Principles of Sustainability
- Project Management
- Waste and Wastewater Treatment Engineering
- Water and Water Resource Engineering

Electives

Environmental Technology

- Advanced Treatment and Management of Solid and Municipal Waste
- Chemical Separations for Energy and Environmental Applications
- Combustion and Air Pollution Control
- Environmental Measurements
- Hydraulics and Hydrology
- Measurements of Air Pollutants

Sustainability and Environmental Management

- Data Mining
- Design of Smart Cities and Sustainable Building
- Energy and Carbon Auditing
- Energy and Environmental Policy
- Environmental Social Governance
- Social Perspectives of Environmental Science and Engineering
- Sustainable and Renewable Energy
- Urban Sustainability

Environmental Science

- Air Quality Modeling
- Atmospheric Chemistry
- Atmospheric Science - An Introductory Survey
- Environmental Conservation and Resources Management
- Environmental Measurements
- Environmental Toxicology

Optional Electives

- Electrical Services
- Electromagnetic Principles for Energy Engineers
- Energy Efficiency for Buildings
- Fire Engineering and Piped Services
- Fire Science and Modelling
- HVAC Engineering
- Power Electronics and Smart Lighting Controls



Industry Ready Programme

SEE has established the "Industry Ready Programme" in 2021, a unique programme with industry partners providing intensive training workshops for students on topics that are relevant for practitioners. Students are placed in different companies for a two-month internship related to energy, environment or sustainability after the training.

The training workshops and internship are arranged under the following two tracks:

- Energy/Building Energy Efficiency
- Environment/Sustainability



Acknowledgement of Support

SEE would like to thank the following strategic parties (in alphabetical order) for their support to the Industry Ready Programme.

- Allied Sustainability and Environmental Consultants Group Limited
- Arup
- Associated Engineers, Limited
- BEAM Society Limited
- Building Services Operation and Maintenance Executives Society
- Business Environment Council
- Chartered Institution of Water and Environmental Management Hong Kong
- CLP Power Hong Kong Limited
- Dunwell Group
- Federation of Hong Kong Industries Group 26 (Environmental Industries Council)
- Hong Kong Green Building Council
- Hong Kong Institute of Qualified Environmental Professionals Limited
- Schneider Electric Limited
- Swire Coca-Cola HK
- Telemax Environmental and Energy Management Limited
- The Hong Kong and China Gas Company Limited
- Versatech ECO-Innovation Limited
- Versatech Energy Innovation Limited

Student Exchange Programme

To widen the global horizon and enhance the learning experience, students are encouraged to join the Student Exchange Programme which allows them to undertake part of their degree study abroad. Students can apply for exchange places of partner institutions at both institutional and school level programmes.

Outbound exchange places at the following institutions are exclusively reserved for our SEE students:

Destination	Institution
France	INSA Lyon
Germany	Leibniz University of Hannover Ludwig-Maximilians-Universität München
South Korea	Ewha Womans University Hanyang University
Sweden	Chalmers University of Technology
Taiwan	University System of Taiwan



Message from Graduates/Students

My goal is to contribute to a more sustainable future, and an education in an environment-focused course was what I wanted. SEE was my favourite choice when applying to Universities back in 2017. I was intrigued by the broad coverage of environment-related topics. Professors and students here are always very friendly and welcoming I was able to find like-minded individuals from many different backgrounds. This trains me to be more outspoken, open minded, and empathetic



KIRUPAKARAN Shruthe
(BEngEVE graduate, 2018 Cohort)



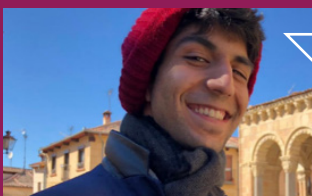
TUNG Hiu Ching Nicole
(BEngESE graduate, 2014 Cohort)

I am so lucky to be given the valuable opportunity from SEE to work as a summer intern in the CLP Power Hong Kong Limited. Through this experience, I further explore and discover my abilities and interests in the energy career field. Now I am better prepared for the future career.

The programme is taught by a group of passionate professors who prepare us to be professional engineers. Other than training us into well-equipped individuals, we have opportunities to explore the world through overseas student exchange programme. Overall, I would like to comment that SEE is a great place to explore my interests and develop my career.



CHAN Tsz Chung George
(BEngESE graduate, 2013 Cohort)



SABHARWAL Rohan
(BEngESE graduate, 2016 Cohort)

SEE presents it students with multiple opportunities for them to grow as engineers of tomorrow. From my time at the SEE, I consider myself fortunate to have interned at two multinational corporations that are constantly revolutionizing the energy industry. Despite being a non-local student from India, I never felt disadvantaged and that's largely due to the nature of the staff and students of the SEE and the academic programme.

Competitions and Scholarship Awards

HKIE Environmental Division Prize for Best Final Year Environmental Project, Champion (2023)



VTech Innovation & Sustainability Award (2021 & 2022)



"Green Energy Dreams Come True" Competition, First Runner-up (2022)



Social Innovation Inventor – Competition for Innovation Design, Champion (2021)



"Design the Future" Automotive Design Competition, The Best Futuristic Design Award (2020)



Energy Saving Championship Scheme, Hanson Outstanding Award (Environment Bureau & Electrical and Mechanical Services Department) (2018)



Sasaol Solar Challenge (South Africa), Sustainability Class Winner (2018)



11th National University Student Social Practice and Science Contest on Energy Saving & Emission Reduction, Second Prize (2018)



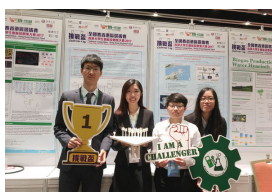
World Sustainable Built Environment International Youth Competition, The Most Innovative Urban Sustainability Award (2017)



Hong Kong Jockey Club Scholarship (2017 & 2018)



Challenge Cup, Merit Prize (2016), Third Prize (2017)



Innovation and Technology Scholarship Award (2014, 2015, 2016)



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