Introduction

The Energy and Environmental Engineering (EEEN) Programme at CUHK provides the engineering knowledge and training for its graduates to tackle a broad spectrum of energy issues pertaining to renewable, environmental, and building technologies. The Programme puts forth a strong platform and broad-based perspective for learning and understanding the relations and trade-offs between energy and environment, and the ensuing engineering challenges in attaining viable solutions.

Programme Features

- Interdisciplinary & Problem-Solving:
  - Fundamental knowledge and problem-solving skills in energy principles, technologies, and systems.
  - Interdisciplinary major required and core elective courses are co-designed with the Earth System Science Programme and the School of Architecture, and a host of elective courses from the Environmental Science Programme, and the Department of Geography and Resource Management.

- Three Study Streams:
  - Renewable Energy Technology Stream, for enhanced coverage on renewable energy generation, system design, storage, distribution, and management;
  - Green Building Technology Stream, for fundamental knowledge on environmental performance assessment and energy management of urban buildings;
  - Environmental Engineering Stream, for principles of natural and built environments, and air pollution monitoring and control challenges.

Programme Outcomes

Students will acquire fundamental knowledge in energy principles, technologies and environmental sciences, as well as the ability to facilitate solutions to problems related to energy technologies, environmental engineering, urban pollutions, building performance assessment and control, etc., that contribute to the well-being of our environment and society.

Career Prospects

The Programme will afford graduates strong career prospects. They will find employability in current and emerging areas of energy systems, environmental monitoring and control, sensor instrumentation, and smart and green building technologies, among others. They can land jobs in Government, electric companies and power grid enterprises, building and construction industries, consulting firms and green groups, renewable technology companies, and vehicle industries, to cite just some of the possibilities. They can also pursue postgraduate studies in their specialized areas of interest in Hong Kong or overseas.
Major Electives

Renewable Energy Technology Stream
(C)/(R) EEEN3030 Engineering Materials
(C)/(R) EEEN4020 Solar Energy and Photovoltaic Technology
(N)/(E) CHEM4280 Chemistry in Biofuel (2 units)
(C)/(E) EEEN4010 Kinetic Energy Harvesting Devices and Systems
(N)/(E) EEEN4030 Nuclear Energy and Risk Assessment
(C)/(E) EEEN4050 Energy Storage Devices and Systems
(C)/(E) EEEN4060 Energy Distribution
(C)/(E) ELEG4360 Introduction to Electric Power Systems

Green Building Technology Stream
(N)/(R) ARCH3424 Building Technology III: Environmental Technology
(C)/(R) ARCH4431 Topical Studies in Building Technology
(N)/(E) ARCH2421 Introduction to Building Technology
(C)/(E) EEEN3010 Building Automation and Control
(N)/(E) EEEN3020 Energy Utilization and Human Behavior
(N)/(E) EELEG2070 Introduction to Power Electronics
(N)/(E) MAEG3050 Introduction to Control Systems
(N)/(E) MAEG3920 Engineering Design and Applications

Environmental Engineering Stream
(C)/(R) ESSC4240 Air Pollution Science and Engineering
(N)/(R) GRMD3203 Urban Environmental Problems
(N)/(E) ARCH2421 Introduction to Building Technology
(C)/(E) ARCH4431 Topical Studies in Building Technology
(N)/(E) EEEN3010 Building Automation and Control
(N)/(E) ENSC4230 Principles of Environmental Protection and Pollution Control
(N)/(E) ENSC4240 Environmental Impact Assessment
(N)/(E) GRMD4204 Environmental Planning and Assessment

Others
(N) ENGG1820 Engineering Internship (1 unit)
(N) ESSC3200 Atmospheric Dynamics
(N) ESSC3220 Atmospheric Chemistry
(N) ESSC3320 Hydrogeology
(N) ESSC3600 Understanding Our Biosphere
(N) ESSC3800 Global Environmental Change
(N) ESSC4540 Remote Sensing - Principles and Applications
(N) GRMD2404 Energy and Society
(N) GRMD3202 Environmental Management
(N) GRMD3403 Methods for Resource Evaluation and Planning
(N) GRMD4202 Hydrology and Water Resources
(N) GRMD4401 Energy Resources
(N) MAEG3030 Fluid Mechanics
(N) MAEG4030 Heat Transfer
(N) MAEG4080 Introduction to Combustion
(N) PHYS4420 Physics in Meteorology

Year 1

Faculty Package
ENGG1100 Introduction to Engineering Design
ENGG1110 Problem Solving By Programming

Foundation Science Courses
CHEM1070 Principles of Modern Chemistry
CHEM11380 Basic Chemistry for Engineers
ENGG1310 Engineering Physics for Engineers
ENGG2601 Technology, Society and Engineering Practice (2 units)
LSCI1001 Basic Concepts in Biological Sciences
LSCI1003 Calculus for Engineers
PHYS1110 Engineering Physics: Mechanics and Thermodynamics

Foundation Mathematics Courses
ENGG1410 Linear Algebra and Vector Calculus for Engineers

University Core Requirements
English (4 units), Chinese (3 units), College GE (3 units), Foundation GE (3 units), PE (2 units)

Year 2

Faculty Package
ENGG2601 Technology, Society and Engineering Practice (2 units)

Foundations Mathematics Courses
ENGG2420 Complex Analysis and Differential Equations for Engineers
ENGG2430 Probability and Statistics for Engineers

Major Required Courses
EEEN2020 Renewable Energy Technologies
EEEN2010 Energy Technologies and the Environment

Major Electives
Core or Non-Core Elective (0-3 units)

University Core Requirements
English (3 units), Chinese (3 units), Foundation GE (3 units) & Other GE (3 units)

ENGG2602 Engineering Practicum (1 unit) (5 weeks)

Year 3

Major Required Courses
ESSC2800 Introduction to Environmental Engineering
MAEG2030 Thermodynamics
SEEM2540 Energy and Environmental Economics and Management

Major Electives
Core or Non-Core Elective (6-12 units)

University Core Requirements
English (2 units), College GE (3 units), Other GE (3 units) & IT (1 unit)

Year 4

Major Required Courses
EEEN4998 Final Year Project I
EEEN4999 Final Year Project II

Major Electives
Core or Non-Core Elective (6-12 units)

University Core Requirements
Other GE (3 units)

(C) - Core Electives (at least 9 units are required)
(E) - Electives in specific streams
(N) - Non-Core Electives
(R) - Required Courses in specific streams
To qualify for a stream, students must complete a minimum of 15 units taken under the stream.

Summary

| University Core Requirements (39 units): | 21 |
| - General Education (College/Foundation/Others) | 21 |
| - Languages (English & Chinese) | 15 |
| - Physical Education | 2 |
| - IT | 1 |
| Major Requirements (75 units) | 123 |
| - Faculty Package | 9 |
| - Foundation Science | 9 |
| - Foundation Mathematics | 12 |
| - Required Courses | 18 |
| - Elective Courses (Core & Non-Core) | 21 |
| - Final Year Projects | 6 |
| Free Electives (9 units) | 9 |
| Total | 123 |

For updated information, please refer to http://www.ener.cuhk.edu.hk.
EEEN Scholarship

Industrial Scholarship
With the generous donations from a number of industrial companies, many industrial scholarships are set up specifically for EEEN students.

Internship and Student Exchange Programme
EEEN students could opt for summer internship, work-study, or international student exchange programme. The in-field training helps prepare students to be the next generation professional engineers.

Top-tier Teaching and Research Laboratory Facilities

Project Competitions and Field Trips

Admissions
For details of the admission information, please refer to the Faculty brochure or the Faculty website: http://www.erg.cuhk.edu.hk.

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