

## Study Plan of MPhil - PhD Programme

Programme Title: MPhil-PhD in Energy Science and Engineering

Offered by: School of Science and Engineering

### 1. Target Participants

The Programme is designed for students who wish to pursue a higher degree in the broad area of Energy Science and Engineering (ENE), with a research focus on multi-dimensional energy theory, fusing and restructuring complex learning related to energy, generate clean and sustainable energy, etc. An applicant with a research master's degree should apply for admission to the PhD Stream, while an applicant with a bachelor degree can apply for admission to either MPhil or PhD Stream. Applicants should have education background in science and engineering.

### 2. Programme Information

Study Mode: Full Time

Study Period: The study period for students of different streams / stages under the framework of the new MPhil-PhD Programmes are summarized below:

Degree	Mode	Maximum Pre-Candidacy Period <sup>1</sup>	Normative Period	Maximum Period
MPhil	FT	--	24 months	48 months
PhD (entering with a research master's degree)	FT	24 months	48 months	72 months
PhD (entering without a research master's degree)	FT	36 months	60 months	84 months

<sup>1</sup> Maximum period to pass the candidacy requirement, counted from first entry.

### Requirement for MPhil Students

#### 1. Course Requirement

MPhil students within Normative Study Period (2 years)	Lecture Courses	3 units × 6 courses = 18 units
	Thesis Research Course <i>-ENE6511 Thesis Research-</i>	6 units × 4 terms = 24 units
	Other Courses <i>-ENE6531 Research Seminars-</i>	0 units × 4 terms = 0 units
	Civic Education Courses	Refer to the official notice from HSS
MPhil Students Exceeding Normative Study Period (2 years)	Thesis Research Course <i>-ENE6511 Thesis Research-</i>	6 units × 4 terms = 24 units

## 1.1. Lecture Courses

### 1.1.1. Course Requirement

- A minimum of 18 units are required from the following list of lecture courses, with **at least 3 units** to be selected from Group A and the rest from Group B.
- Up to 3 courses from Group B can be replaced by courses in other postgraduate programmes at CUHK(SZ) subject to the endorsement by supervisors and the approval by Graduate Panel.

### 1.1.2. Course Exemption

- Students can submit the prescribed application form with any required supporting documents and apply for exemption for at most-two courses (up to 6 units) from Group B. The application should be approved by the Dean of the Graduate School after the endorsement of the Programme Coordinator and the Panel Chair.

## 1.2. Thesis Research Course

Students **MUST** register for thesis research courses in each term (summer term excluded), and submit a research progress report in the end of each term (summer term excluded). The minimum requirement is listed below.

Course code	Course Title	Units	Contact Hours	Minimum Grade
ENE6511	Thesis Research	6	84	B-
A student is required to meet with his/her supervisor regularly who provides necessary guidance and supervision on the student's thesis research and monitors his/her academic progress. The minimum grade requirement of this course is "B-".				

## 1.3. Other Courses

Starting from AY2024-25, students are required to register for Research Seminars course in each term (summer term excluded) and complete **at least 5 seminar attendances before the end of each term** (summer term excluded) related to your own major and record your attendance via

<https://docs.qq.com/form/page/DSUhkTUVZdGljSmlL?u=f1cfee0bf8f64d4dbdd1e95108014a6b#/fill>.

Course code	Course Title	Units	Contact Hours	Minimum Grade
ENE6531	Research Seminars	0	--	Pass

## 1.4. Civic Education

Please refer to the official notice from HSS.

## 2. Progress towards Graduation

Please refer to 5. Progress towards Graduation in Code of Practice.

## 3. Other Information

Code of Practice Research Postgraduate Studies refers to <https://gs.cuhk.edu.cn/RPG>

## Requirement for PhD Students

### 1. Course Requirement

PhD candidates have to complete a minimum number of units for lecture courses and thesis research courses (every term) during the pre-candidacy and candidacy stage. However, since the study period of students may vary, the total number of thesis research courses to be taken may also vary, which will affect the total number of units taken by each student for graduation.

- For PhD students **with** a research master's degree, total number of units required for graduation within normative study period is:

Pre-candidacy Stage (2 years)	Lecture Courses	3 units × 9 courses = 27 units
	Thesis Research Course <i>-ENE6511 Thesis Research-</i>	6 units × 4 terms = 24 units
	Other Course <i>-ENE6531 Research Seminars-</i>	0 units × 4 terms = 0 units
	Civic Education Courses	Refer to the official notice from HSS
Candidacy Stage (2 years)	Thesis Research Course <i>-ENE6511 Thesis Research-</i>	12 units × 4 terms = 48 units
	Other Course <i>-ENE6531 Research Seminars-</i>	0 units × 4 terms = 0 units
	Civic Education Courses	Refer to the official notice from HSS
PhD Students Exceeding Normative Study Period (2 years)	Thesis Research Course <i>-ENE6511 Thesis Research-</i>	12 units × 4 terms = 48 units
	Other Course <i>-ENE6531 Research Seminars-</i>	0 units × 4 terms = 0 units

- For PhD students **without** a research master's degree, total number of units required for graduation within normative study period is:

Pre-candidacy Stage (3 years)	Lecture Courses	3 units × 9 courses = 27 units
	Thesis Research Course <i>-ENE6511 Thesis Research-</i>	6 units × 6 terms = 36 units
	Other Course <i>-ENE6531 Research Seminars-</i>	0 units × 6 term = 0 units
	Civic Education Courses	Refer to the official notice from HSS
Candidacy Stage (2 years)	Thesis Research Course <i>-ENE6511 Thesis Research-</i>	12 units × 4 terms = 48 units
	Other Course <i>-ENE6531 Research Seminars-</i>	0 units × 4 terms = 0 units
	Civic Education Courses	Refer to the official notice from HSS
PhD Students Exceeding Normative Study Period (2 years)	Thesis Research Course <i>-ENE6511 Thesis Research-</i>	12 units × 4 terms = 48 units
	Other Course <i>-ENE6531 Research Seminars-</i>	0 units × 4 terms = 0 units

## 1.1. Lecture Courses

### 1.1.1. Course Requirement

A student will have to complete 27 units of lecture courses as part of the candidacy requirement. **At least 3 units should be selected from Group A**, and the rest can be selected from Group B. The course list can be found in the appendix.

### 1.1.2. Course Exemption

Students may be granted course and unit exemptions if they have taken similar or equivalent postgraduate courses with satisfactory performance (“B” grade or above). Supporting documents such as academic transcripts, course syllabus must be provided. Exemption for a maximum of 9 units may be granted. The application should be approved by the Dean of the Graduate School after the endorsement of the Programme Director and the Graduate Panel Chair.

## 1.2. Thesis Research Courses

For PhD students at pre-candidacy stage and candidacy stage, students **MUST** register for thesis research courses that have 6 units and 12 units respectively in each term (summer term excluded) and submit a research progress report in each term (summer term excluded). The minimum requirement is listed below.

Stage	Course Title	Units	Contact Hours	Minimum Grade
Pre-candidacy Stage	ENE6511 Thesis Research	6	84	B-
Candidacy Stage	ENE6511 Thesis Research	12	168	B-
Exceeding Normative Study Period	ENE6511 Thesis Research	12	168	B-

A student is required to meet with his/her supervisor regularly who provides necessary guidance and supervision on the student’s thesis research and monitors his/her academic progress. The minimum grade requirement of this course is “B-”.

## 1.3. Other Courses

Starting from AY2024-25, students are required to register for Research Seminars course in each term (summer term excluded) and complete **at least 5 seminar attendances before the end of each term** (summer term excluded) related to your own major and record your attendance via

<https://docs.qq.com/form/page/DSUhkTUVZdGljSmlL?u=f1cfee0bf8f64d4dbdd1e95108014a6b#/fill>.

Stage	Course Title	Units	Contact Hours	Minimum Grade
Pre-candidacy Stage	ENE6531 Research Seminars	0	--	Pass
Candidacy Stage	ENE6531 Research Seminars	0	--	Pass
Exceeding Normative Study Period	ENE6531 Research Seminars	0	--	Pass

## 1.4. Civic Education

Please refer to the official notice from HSS.

## 2. Pre-candidacy stage to candidacy stage

There are two stages of PhD study: the pre-candidacy stage and the candidacy stage. No student will be admitted directly as a PhD student in candidacy stage; such a status can only be gained by a pre-candidacy PhD student upon satisfying all the Candidacy Requirements. Only a PhD candidate (i.e. PhD student in the candidacy stage) can submit a thesis and be examined.

No PhD student shall proceed to the candidacy stage until s/he has fulfilled all components of the requirements. The requirements are as follow:

- (a) Candidacy examination (including written and oral examinations) ; and
- (b) Credit requirements for 9 lecture courses at the pre-candidacy stage (Grade no lower than C, F&W grade will not be counted toward to the credit requirements.); and
- (c) Requirements for the civic education course (CEC) corresponding to the year of admission; and
- (d) Thesis research credit requirements; and
- (e) Attendance requirements for seminars.

The examination should be passed by the end of 24 months from the first entry for students with research master's degree or 36 months from the first entry for students without research master's degree.

The Candidacy Examination Policy of ENE refers to:

[ENE Implementation Guidelines for Candidacy Examination 1017.pdf](#)

### **3. Progress towards Graduation**

Please refer to 5. Progress towards Graduation in Code of Practice.

### **4. Other Information**

Code of Practice Research Postgraduate Studies refers to <https://gs.cuhk.edu.cn/RPG>

## Appendix

### Group A:

Course code	Course Title	Units	Contact Hours	Minimum Grade
ENE6001	Electrical Power Systems	3	42	C
ENE6002	Smart Grid	3	42	C
MSE6503	Energy and Environmental Materials	3	42	C
MSE6504	Materials in Energy Storage	3	42	C
GGE5001F	Academic Writing and Presentation	2	28	Pass
SSE5001	Research Methodology and Ethics	1	14	Pass

### Group B:

Course code	Course Title	Units	Contact Hours	Minimum Grade
CHM6549	Energy-related Electrochemical Principle and Technology	3	42	C
CHM6820	Computational Chemistry in Energy Storage and Conversion	3	42	C
CIE6007	Machine Learning	3	42	C
CIE6010	Optimization Theory and Algorithms	3	42	C
ENE6011	Power Electronics	3	42	C
ENE6012	Energy Economics	3	42	C
ENE6013	Electrical Machines	3	42	C
ENE6014	Big Data in Smart Grid	3	42	C
ENE6015	Applications of Artificial Intelligence in Energy Systems	3	42	C
ENE6016	Fundamentals of Power Semiconductor Devices	3	42	C
ENE6031	Solar Energy Engineering	3	42	C
ENE6032	Wind and Hydropower Energy Conversion	3	42	C
ENE6033	Geothermal Science and Technology	3	42	C
ENE6041	Nuclear Energy and Risk Assessment	3	42	C
ENE6042	Electromagnetic Theory and Method for Earth Physics	3	42	C
ENE6043	Principle and Application of Intelligent Detection Instrument	3	42	C
ENE6044	Electrodynamics II	3	42	C
ENE6045	Assembly, Test and Analysis of Metal Ion Batteries	3	42	C
ENE6046	Rechargeable Metal Ion Batteries and Materials	3	42	C
MSE5121	Solid-State Physics	3	42	C
MSE6203	Advanced Physical Chemistry	3	42	C
MSE6211	Thermodynamics and Kinetics	3	42	C
MSE6548	Techniques for Materials Characterization	3	42	C
PHY5410	Advanced Quantum Mechanics	3	42	C
PHY6100	Semiconductor Physics	3	42	C
PHY6301	Fluid Mechanics	3	42	C