

Study Plan of MPhil - PhD Programme

Programme Title: MPhil-PhD in Computer and Information 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 Computer and Information Engineering (CIE), with research focus in artificial intelligence, communications and networking, computer vision, data science, digital signal processing, intelligent systems and robotics, operations research, optimization, bioinformatics, optoelectronics, photonics and physics on optics, and related domains. 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 ¹	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

¹ *Maximum period to pass the candidacy requirement, counted from first entry.*

Requirement for MPhil Students

1. Course Requirement

MPhil students within Normative Study Period	Lecture Courses	3 units × 6 courses = 18 units
	Thesis Research Courses -CIE6211 Thesis Research-	6 units × 4 terms = 24 units
	Other Courses -CIE6231 Research Seminars- -CIE6211 Research Methodology and Ethics -CIE6241 Thesis Writing, and Presentation	0 units × 4 terms = 0 units 0 units × 1 term = 0 units 0 units × 1 term = 0 units
	Civic Education Courses	Refer to the official notice from HSS
MPhil Students Exceeding Normative Study Period	Thesis Research Courses - CIE6211 Thesis Research-	6 units × 4 terms = 24 units

1.1. Lecture Courses

- Minimum of 18 units are required from the following list of lecture courses, with **at least** 6 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.

1.2 Thesis Research Course

Students **MUST** register for thesis research courses in each term, and submit a research progress report in March and September every year respectively. The minimum requirement is listed below.

Course code	Course Title	Units	Contact Hours	Minimum Grade
CIE6211	Thesis Research	6	84	C
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 "C".				

1.3. Other Courses

Course code	Course Title	Units	Contact Hours	Minimum Grade
CIE6221	Research Methodology and Ethics	0	42	Pass
CIE6231	Research Seminars	0	--	Pass
CIE6241	Thesis Writing, and Presentation	0	21	Pass

1.4. Civic Education

Please refer to the official notice from HSS.

2. Progress towards Graduation

Please refer to <https://gs.cuhk.edu.cn/sites/gprod.dpsite02.cuhk.edu.cn/files/2022-11/COP%205%20RPG-Oct.2022.pdf>

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 Courses -CIE6211 Thesis Research-	6 units × 4 terms = 24 units
	Other Courses -CIE6231 Research Seminars- -CIE6221 Research Methodology and Ethics -CIE6241 Thesis Writing, and Presentation	0 units × 4 terms = 0 units 0 units × 1 term = 0 units 0 units × 1 term = 0 units
	Civic Education Courses	Refer to the official notice from HSS
Candidacy Stage (2 years)	Thesis Research Courses -CIE6211 Thesis Research-	12 units × 4 terms = 48 units
	Other Course -CIE6231 Research Seminars-	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 Courses -CIE6211 Thesis Research-	12 units × 4 terms = 48 units
	Other Course -CIE6231 Research Seminars-	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 Courses -CIE6211 Thesis Research-	6 units × 6 terms = 36 units
	Other Courses -CIE6231 Research Seminars- -CIE6221 Research Methodology and Ethics -CIE6241 Thesis Writing, and Presentation	0 units × 6 terms = 0 units 0 units × 1 term = 0 units 0 units × 1 term = 0 units
	Civic Education Courses	Refer to the official notice from HSS
Candidacy Stage (2 years)	Thesis Research Courses -CIE6211 Thesis Research-	12 units × 4 terms = 48 units
	Other Course -CIE6231 Research Seminars-	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 Courses -CIE6211 Thesis Research-	12 units × 4 terms = 48 units
	Other Course -CIE6231 Research Seminars-	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 9 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.
- Up to 4 courses from Group B can be replaced by courses in other postgraduate programmes at CUHK(SZ) subject to the approval from the course offering unit, and the endorsement by supervisors and the approval by Graduate Panel.

1.1.2. Course Exemption

- Students may be granted exemption from courses 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. Applications will be assessed individually and subject to the University’s final approval.

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 and submit a research progress report in March and September every year respectively. The minimum requirement is listed below.

Stage	Course Title	Units	Contact Hours	Minimum Grade
Pre-candidacy Stage	CIE6211 Thesis Research	6	84	C
Candidacy Stage	CIE6211 Thesis Research	12	168	C
Exceeding Normative Study Period	CIE6211 Thesis Research	12	168	C

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 “C”.

1.3. Other Courses

Stage	Course Title	Units	Contact Hours	Minimum Grade
Pre-candidacy Stage	CIE6221 Research Methodology and Ethics	0	42	Pass
	CIE6231 Research Seminars	0	--	Pass
	CIE6241 Thesis Writing, and Presentation	0	21	Pass
Candidacy Stage	CIE6231 Research Seminars	0	--	Pass
Exceeding Normative Study Period	CIE6231 Research Seminars	0	--	Pass

1.4. Civic Education

Please refer to the official notice from HSS.

2. Candidacy Examination

Each PhD student will have to attend a candidacy examination before the end of the maximum pre-candidacy period. Candidacy examination will be comprehensive and rigorous, including two parts:

Part I - A comprehensive written examination.

Part II - Thesis proposal and oral defence of the thesis proposal.

A student must pass both parts of the Candidacy Examination. 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 CIE refers to:

[15. CIE Implementation Guidelines for Qualifying Examination-V2.pdf \(cuhk.edu.cn\)](https://www.cuhk.edu.cn/15_CIE_Implementation_Guidelines_for_Qualifying_Examination-V2.pdf)

3. Progress towards Graduation

Please refer to <https://gs.cuhk.edu.cn/sites/gprod.dpsite02.cuhk.edu.cn/files/2022-11/COP%205%20RPG-Oct.2022.pdf>

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
CIE6001	Social Computing	3	42	C
CIE6002	Matrix Analysis	3	42	C
CIE6003	Advanced Computer Architecture	3	42	C
CIE6004	Image Processing and Computer Vision	3	42	C
CIE6005	Stochastic Process	3	42	C
CIE6006	Data Analytics	3	42	C
CIE6007	Machine Learning	3	42	C
CIE6010	Optimization Theory and Algorithms	3	42	C
CIE6011	Optical Communication and Interconnects	3	42	C
CIE6012	Computer and Network Security	3	42	C
CIE6013	Mobile Networking	3	42	C
CIE6014	Advanced Wireless Communications	3	42	C
CIE6015	Advanced Topics in Signal Processing	3	42	C
CIE6016	Advanced Computer Networks	3	42	C
CIE6020	Information Theory	3	42	C
CIE6021	Selected Topics in Artificial Intelligence	3	42	C
CIE6022	Dynamic Programming	3	42	C
CIE6023	Introduction of Reinforcement Learning	3	42	C
CIE6025	Selected Topics in CIE I	3	42	C
CIE6030	Selected Topics in Stochastic Control	3	42	C
CIE6032	Deep Learning Foundations and Their Applications	3	42	C
CIE6035	Regularization/Kernel Methods: Theory for the Users	3	42	C

CIE6036	Network Economics	3	42	C
CIE6037	Automatic Control Theory and Linear Control Systems	3	42	C
CIE6038	CMOS Digital Integrated Circuits Design	3	42	C
CIE6039	Nanotechnology and micro-nanorobotics	3	42	C
CIE6040	Machine Intelligence and Applications	3	42	C
CIE6041	Smart Material and Structures	3	42	C
CIE6042	Programming for Robotics	3	42	C
CIE6043	Fundamentals of Statistical Signal Processing	3	42	C
CIE6132	CMOS Analog IC Design	3	42	C
CIE6134	RF Circuits and Systems	3	42	C

Group B:

Course code	Course Title	Units	Contact Hours	Minimum Grade
CIE6102	Topics in Computer-Aided Geometric Design	3	42	C
CIE6105	Control Systems	3	42	C
CIE6107	Robotics and Intelligent Systems	3	42	C
CIE6108	Advanced Nanotechnology and Nanorobotics	3	42	C
CIE6109	Communication Integrated Circuits Design and Measurement Laboratory	3	42	C
CIE6110	Advanced Convex Optimization	3	42	C
CIE6115	Advanced Topics in Energy Systems	3	42	C
CIE6120	Introduction to Detection & Estimation Theory & Application	3	42	C
CIE6121	Selected Topic in CIE II –Nanoscience	3	42	C
CIE6122	Selected Topics in CIE II	3	42	C
CIE6124	Selected Topics in Spintronics for information storage and processing	3	42	C
CIE6125	Selected Topics in Blockchain Systems	3	42	C
CIE6126	Performance Analysis of Computer and Communication Systems	3	42	C
CIE6127	Telecommunication Switching and Network Systems	3	42	C
CIE6128	Understanding Deep Learning from a Theoretical Perspective	2	28	C
CIE6129	Selected Topics in Cloud Computing	3	42	C

CIE6130	Selected topics in Mobile Computing with Internet of Things	3	42	C
CIE6131	Text Representation Learning	3	42	C
CIE6133	Gaussian Process for Machine Learning and Signal Processing	3	42	C
CIE6135	Multi-Antenna Wireless Communications	3	42	C
CIE6136	The Bootstrap and Its Applications in Signal Processing	3	42	C
CIE6137	Quantum Mechanics for Engineering Application	3	42	C
CIE6138	Very Large Scale Integrated Circuit Computer-aided Design	3	42	C
CIE6139	Coding Theory and Applications	3	42	C