⌐ **Program Information** ⌐

Academic Program: Doctor of Philosophy in Computer Science and Engineering
Academic Year: 2015

Select Language: [English ▾]

 Study Scheme   Learning Outcomes

Study Scheme

Postgraduate Student Handbook 2015-16   (CSE-I)

FACULTY OF ENGINEERING

Computer Science and Engineering

Study Scheme

M.Phil.-Ph.D. Programme in Computer Science and Engineering (Full-time and/or Part-time)

A.   **M.Phil. Student**

1.   *Coursework Requirement*

(a)   Lecture courses:
      Each M.Phil. student is required to complete a minimum of 12 units of postgraduate courses offered by the Division or related courses as approved by the Division.

(b)   Thesis research / monitoring courses:
      Each M.Phil. student must register for the Thesis Research Course.
      (i)   Year One M.Phil. student :CSCI8006 in both terms
      (ii)   Year Two M.Phil. student :CSCI8012 in both terms
      (iii)   Continuing M.Phil. student :CSCI8003

(c)   Other courses
      Each M.Phil. student is required to take CSCI6500 'Seminar for M.Phil. Studies' in every term throughout his/her normative study period.

2.   *Other Requirements*

(a)   Students must fulfill the Term Assessment Requirement of the Graduate School. For details, please refer to Section 13.0 "Unsatisfactory Performance and Discontinuation of Studies" of the General Regulations Governing Postgraduate Studies which can be accessed from the Graduate School Homepage: http://www.cuhk.edu.hk/gss.
(b)   Students may be required by the Division to complete other courses, such as ELTU5501 Postgraduate Presentation Skills or its equivalent, if deemed necessary.
(c)   A student must achieve a minimum grade of C- in each of the courses taken in order to fulfill the graduation requirements, unless special approval is granted by the Faculty Board.
(d)   Students are required to submit a term paper followed by an oral presentation at the end of each term.
(e)   Students are required to submit a research thesis and pass an oral examination for graduation.
(f)   IT Proficiency Test (Applicable to students admitted in 2011-12 and before. Please refer to "Student IT Competence".)
(g)   Complete an Improving Postgraduate Learning (IPL) module on "Observing Intellectual Property and Copyright Law during Research". This is an online module and relevant information can be accessed from the website: http://www.cuhk.edu.hk/clear/prodev/ipl.html.

3.   *Remarks*

      Transfer of candidature to doctoral degree programme:
      A M.Phil. student who wishes to transfer to the doctoral degree programme shall have to fulfill the University's regulation governing the transfer of candidature. In addition, he/she will have to satisfy the following requirements:

(i)   has completed at least 4 graduate courses, with each course grade at "B-" or above;

(ii)   the GPA of courses taken must be at least 2.6 for each term; and

(iii)   has demonstrated his/her research ability in the opinion of the Division.

B.   Ph.D. Student (Pre-candidacy)

The "candidacy requirement" composes of three major parts, namely, coursework requirement, candidacy examination, and thesis proposal (and oral defence). Students must complete and fulfill all three parts within the "maximum period for fulfilling candidacy requirements". Details of the requirement are listed below:

1.   Coursework Requirement

(a) Lecture courses:
   (i)   Each Ph.D. student is required to complete a minimum of 12 units of postgraduate courses offered by the Division and other related courses as approved by the Division.
   (ii)   Out of the 12 units, at least 3 units must be taken from the list of faculty core courses.
   (iii)   To satisfy the Faculty core course requirement, students must achieve at least a grade B in the course. Otherwise, the course will only be counted as an elective.

(b) Thesis research / monitoring courses:
   Each Ph.D. student must register for the relevant Thesis Research Course in every term throughout his/her study period.
   (i)   Full-time Ph.D. (pre-candidacy) student: CSCI8006
   (ii)   Part-time Ph.D. (pre-candidacy) student: CSCI8003

(c) Other courses:
   Each Ph.D. student is required to take CSCI7600 'Seminar for Ph.D. Studies' in every term throughout his/her normative study period.

2.   *Candidacy Examination*

(a) Each Ph.D. student is required to pass the Candidacy Examination within the maximum period of his/her pre-candidacy stage for the advancement to his/her post-candidacy stage.

(b) Each Ph.D. student is required to obtain grade B or above in two additional courses taken from any two of the following areas:
   • Artificial Intelligence / Bioinformatics
   • Theoretical Computer Science
   • Data Engineering / Software Engineering / Programming Languages
   • Rich Media / Visual Computing / Human-Computer Interaction
   • Networking and Security
   • Digital Circuits & VLSI Design
   • Microprocessors & Systems

(c) No exemptions to the above two additional courses will be allowed.

3.   *Thesis Proposal and Oral Defence*

   Each Ph.D. student is required to submit a written thesis proposal and pass an oral defence

4.   *Remarks*

(a) For the advancement to post-candidacy stage, each Ph.D. student is required to pass:
   (i)   at least 12 units of graduate courses, and
   (ii)   the candidacy examination
   (iii)   a thesis proposal followed by an oral presentation

(b) A student is required to discontinue from study if he/she cannot fulfill the candidacy requirement within the maximum period.

5.   *Other Requirement*

Students may be required by the Division to complete other courses, such as ELTU5501 Postgraduate Presentation Skills or its equivalent, if deemed necessary.

C.   Ph.D. Student (Post-candidacy)

1.   *Coursework Requirement*

(a)   Lecture courses:
There is no additional course requirement for Ph.D. candidate.

(b)   Thesis research/monitoring courses:
Each Ph.D. student must register for the relevant Thesis Research Course in every term throughout his/her study period.

(c)   Other courses:
Each Ph.D. student must register for the relevant Thesis Research Course in every term throughout his/her study period.
  (i)   Full-time Ph.D. (post-candidacy) student: CSCI8012
  (ii)   Part-time Ph.D. (post-candidacy) student: CSCI8006
  (iii)   Continuing Ph.D. (post-candidacy) student: CSCI8003

(d)   Other courses:
Each Ph.D. student is required to take CSCI7600 Seminar for Ph.D. Studies in every term throughout his/her normative study period.

2.   *Other Requirements*

(a)   Students must fulfill the Term Assessment Requirement of the Graduate School. For details, please refer to Section 13.0 "Unsatisfactory Performance and Discontinuation of Studies" of the General Regulations Governing Postgraduate Studies which can be accessed from the Graduate School Homepage: http://www.cuhk.edu.hk/gss.
(b)   Students may be required to take any courses if deemed necessary.
(c)   If the Division deems necessary, students who fail CSCI8xxx may be required to take course(s) or submit project report(s).
(d)   Each Ph.D. student is required to submit a research paper and give a presentation before the end of each year of attendance, exact dates to be determined by the Division. A student with failure grade may be required to discontinue his/her study.
(e)   A student must achieve a minimum grade of C- in each of the courses taken in order to fulfill the graduation requirements, unless special approval is granted by the Faculty Board.
(f)   Students are required to submit a research thesis and pass an oral examination for graduation.
(g)   IT Proficiency Test. (Applicable to students admitted in 2011-12 and before. Please refer to "Student IT Competence".)
(h)   Complete an Improving Postgraduate Learning (IPL) module on "Observing Intellectual Property and Copyright Law during Research". This is an online module and relevant information can be accessed from the website: http://www.cuhk.edu.hk/clear/prodev/ipl.html.

Course List

Code	Course Title	Unit
CENG5010	Reconfigurable Computing	3
CENG5020	Fault-Tolerant Computing	3
CENG5030	Energy Efficient Computing	3
CENG5050	Hardware for Human Machine Interface	3
CENG5120	Sequential Machines and Automata Theory	3
CENG5270	EDA for Physical Design of Digital Systems	3
CENG5271	EDA for Logic Design of Digital Systems	3
CENG5272	VLSI Testing	3
CENG5420	Computer Architecture Hardware	3
CENG5430	Architectures and Algorithms for Paralle Processing	3

CENG5440	Network-on-Chips for Many-Core Systems	3
CSCI5010	Practical Computational Geometry Algorithms	3
CSCI5020	External Memory Data Structures	3
CSCI5030	Machine Learning Theory	3
CSCI5040	Combinatorics and Computing	3
CSCI5050	Bioinformatics and Computational Biology	3
CSCI5060	Techniques in Theoretical Computer Science	3
CSCI5070	Advanced Topics on Social Computing	3
CSCI5080	Advanced System Security	3
CSCI5110	Advanced Topics in Software Engineering	3
CSCI5120	Advanced Topics in Database Systems	3
CSCI5130	Theory of Programming Languages	3
CSCI5140	Advanced Topics in Operating Systems	3
CSCI5150	Machine Learning Algorithms and Applications	3
CSCI5160	Advanced Algorithms	3
CSCI5170	Theory of Computation Complexity	3
CSCI5210	Advanced Computer Graphics and Visualization	3
CSCI5230	Advanced Topics in Compiler Construction	3
CSCI5240	Combinatorial Search and Optimization with Constraints	3
CSCI5290	Theory of Neural Computation	3
CSCI5310	Topics in Biometrics	3
CSCI5320	Topics in Graph Algorithms	3
CSCI5330	Advanced Algorithms for Bioinformatics	3
CSCI5350	Advanced Topics on Game Theory in Computer Science	3
CSCI5370	Quantum Computing	3
CSCI5390	Advanced Topics in GPU Programming	3
CSCI5420	Computer System Performance Evaluation	3
CSCI5430	Autonomous Agents and Multiagent Systems	3
CSCI5440	Theory of Cryptography	3
CSCI5450	Randomness and Computation	3
CSCI5460	Virtual Reality	3
CSCI5520	Foundations of Data Privacy	3
CSCI5530	Interactive Computer Animation and Stimulation	3
CSCI5550	Advanced File and Storage Systems	3
CSCI5560	Analysis of Boolean Functions	3
CSCI6220	Advanced Topics in Computer Vision	3
CSCI6240	Semantic Web	3
CSCI6270	Advanced Topics in Distributed Systems	3
CSCI6480	Distributed Multimedia and Networks	3
CSCI6500	Seminars for M.Phil. Studies	1
CSCI7600	Seminars for Ph.D. Studies	1
CSCI8003	Thesis Research	3
CSCI8006	Thesis Research	6
CSCI8012	Thesis Research	12

Faculty Core Course List

ENGG5101 (CENG5410)	Advanced Computer Architecture	3
ENGG5103 (CSCI5180)	Techniques for Data Mining	3
ENGG5104 (CSCI5280)	Image Processing and Computer Vision	3
ENGG5105 (CSCI5470)	Computer and Network Security	3
ENGG5106 (CSCI5250)	Information Retrieval and Search Engines	3
ENGG5108 (CSCI5510)	Big Data Analytics	3
ENGG5189 (CSCI6200)	Advanced Artificial Intelligence	3
ENGG5202	Pattern Recognition	3
ENGG5281	Advanced Microwave Engineering	3
ENGG5282	Nanoelectronics	3
ENGG5291	Fiber Optics: Principles and Technologies	3
ENGG5301	Information Theory	3
ENGG5302	Random Processes	3
ENGG5303	Advanced Wireless Communications	3
ENGG5383	Applied Crypto	3

	Lightware System Tech	3
ENGG5402	Advanced Robotics	3
ENGG5403	Linear System Theory and Design	3
ENGG5404	Micromaching and Microelectromechanical Systems	3
ENGG5405	Theory of Engineering Design	3
ENGG5501	Optimization I	3
ENGG5781	Matrix Analysis and Computations	3

( ) Denote the course code offered before 2013-14

Study Scheme   Learning Outcomes

Learning Outcomes

1.   Our research programmes aim to educate researchers to embark on careers that would allow them to become world leaders in their fields, working as university professors, principal investigators in research institutes, senior managers in enterprises, or experts in other professions related to the pursuit and application of knowledge.

2.   The University expects **doctoral degree graduates** of research programmes to have acquired in-depth knowledge in a number of major areas of an academic discipline while maintaining a broad understanding of other related fields. Doctoral degree graduates should have accumulated enough educational experience and background learning to be capable of performing independent research to advance scholarship, with global standards. In particular, doctoral graduates should have the ability to identify research trends and opportunities, venture into new research areas when appropriate, define long-term research objectives, formulate original research problems, and originate and develop solution methodologies. Doctoral graduates should be capable of producing research output at a level that can either lead to publications in high-ranking scholastic venues, or to novel applications in relevant industrial, commercial, or other public sectors, or to other forms of useful knowledge transfer to society. They should have gained proficiency in techniques of knowledge dissemination through presentation and writing and some teaching experiences through student tutoring.

3.   The University expects **master's degree graduates** of research programmes to have acquired advanced knowledge in major areas of an academic discipline while maintaining a broad understanding of other related fields. Master's degree graduates should have gained enough background knowledge to enable them to perform research with minimal supervision. In particular, they should have the ability to formulate individual research tasks and to develop solution methodologies under minimal supervision. Master's degree graduates should be capable of producing original, innovative research output, some of which may lead to publication in well-respected scholastic venues. They should have gained proficiency in techniques of knowledge dissemination through presentation and writing.

4.   For graduates of research programmes at both doctoral and master's level, communication and language skills at a level appropriate to university graduates are expected already at the time of admission. In particular, fluent communication skills are expected in the language(s) essential to their research areas. In general, a high level of proficiency in English is expected as it is commonly regarded as the default international research language. Ability in a second language is encouraged.

Course Information

Return to Search   Previous in List   Next in List