



Programs and Courses

The department courses design primarily focuses on theoretic foundation of chemical engineering and materials science, practical course related to developing realistic engineering system, and discussion and seminars on the topic of the potential problems.

Graduation will be permitted after successfully completing required credits in totality in below table.

	Core credits (selected two courses)	Selected credits	Thesis credits	Seminar course	Total credits
Ms program (full time)	6	18	6	4	30
Ms program (part time)	6	27	3		36
PhD program	0	12	12	4	30

1. The Ms programs aim at training students to solve problems in chemical engineering by enlarging and deepening their knowledge base as well as encouraging the intellectual pursuit of creative ideas to improve human and natural environments. To receive their M.S. degrees, our graduate students must complete: at least 30 cr. hr.
 - (1) 6 of which must be M.S. Thesis (defense for proposal and final),
 - (2) At least 6 cr. hr. from the core courses of Advanced mass transfer, Advanced fluid mechanics, Advanced thermodynamics and Advanced chemical kinetics;
 - (3) At least 18cr. Hr. required by the Department. and 6 of which could be undergraduate senior courses;
 - (4) Seminar for 4 semesters within two years. (option to elective one course for foreign student)
2. Our M.S. program also admits working adult students. The course is doing a technical thesis (3 cr. hr.) along with 11 courses (33 cr. hr.), 27 of which must be offered by our department, including 6 cr. hr. of the core courses of Advanced mass transfer, Advanced fluid mechanics, Advanced thermodynamics and Advanced chemical kinetics.
3. The PhD program aims at developing the skills needed to identify issues related to chemical engineering and the ability to formulate and propose solutions to a problem in an independent manner. Regarding Ph.D. programs, the following graduation requirements must be fulfilled: at least 30 cr. hr
 - (1) 12 cr. hr. of Dissertation
 - (2) At least 12 cr. hr. of electives offered by our department;
 - (3) Seminar for 4 semesters (option to elective one course for foreign student)
 - (4) A high-quality dissertation being focused on original research (defense for proposal and final). Publish at least 1 paper in SCI Journal, attend and presentation the research paper in seminar of our department and the international conference abroad.
 - (5) Students whose native language is not English must also demonstrate sufficient command of English. These students are encourage to take appropriate courses offered by the Language Centre

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Core course for post-graduate

year semester Name	First year		Second year	
	Fall (semester1)	Spring (semester2)	Fall (semester1)	Spring (semester2)
Core course (6)	書報討論 (Seminar) CH505 (0)	書報討論 (Seminar) CH505 (0)	書報討論 (Seminar) CH505 (0)	書報討論 (Seminar) CH505 (0)
				論文 (Thesis) (6)
4 selected 2 (6)	高等流體力學 (Advanced Fluid Mechanics) CH547 (3)	高等質量傳送 (Advanced Mass Transfer) CH554 (3)		
	高等化工動力學 (Advanced Chemical Kinetics) CH503 (3)	高等化工熱力學 (Advanced Thermodynamics of Chemical Engineering) CH514 (3)		
credit	6	6	0	6

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Selected course for post-graduate student

Course #	Chinese name	English name	credit	Offer semester
CH502	科技英文	Technical Writing	3	1
CH507	應用數值分析	Applied Numerical Analysis	3	2
CH509	高分子化學	Polymer Chemistry	3	1
CH511	實驗設計	Experimental Design	3	1
CH518	環境系統工程	Environmental Systems Engineering	3	1
CH520	薄膜分離技術	Membrane Separation Technology	3	1
CH521	平面顯示器材料化學	Chemistry Materials of Flate Display	3	1
CH523	表面技術處理特論	Special Topics on Surface Treatment and Technology	3	1
CH523	表面處理技術特論	Special Topics on Surface Treatment and Technology	3	1
CH525	高等儀器分析	Advanced Instrumental Analysis	3	1
CH526	高等儀器分析二	Advanced Instrumental Analysis (II)	3	2
CH527	高分子物理	Polymer Physics	3	2
CH528	高分子熱力學	Polymer Thermodynamics	3	1
CH530	精密陶瓷概論	Introduction to Fine Ceramics	3	1
CH531	高分子光散射特論	Special Topics on Polymer Light Scattering	3	1
CH534	分離技術特論	Special Topics on Separations Technology	3	2
CH535	藥物制放特論	Special Topics on Controlled Drug Release	3	1
CH536	表面分析特論	Special Topics on Surface Analysis	3	2
CH537	光電材料特論	Special Topics on Optoelectronic Materials	3	2
CH539	電化學特論	Special Topics on Electrochemical Engineering	3	1
CH540	化學動力學特論	Special Topics on Chemical Kinetics	3	2
CH542	吸附現象特論	Special Topics on Adsorption Phenomena	3	1
CH544	接著理論特論	Special Topics on Adhesion Science	3	2
CH548	生物物理化學	Biophysical Chemistry	3	1
CH553	表面物理化學特論	Special Topics on Physical Chemistry of Surface	3	1

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CH556	特用化學品特論	Special Topics on Specialty Chemicals	3	2
CH561	反應器設計	Reactor Design	3	2
CH564	懸浮微粒制技術	Particulate Control Technique	3	2
CH565	動態光散射學特論	Special Topics on Dynamic Light Scattering	3	1
CH566	質子交換膜燃料電池特論	Special Topics on Proton-exchange-membrane Fuel Cell	3	1
CH568	無機奈米材料	Inorganic Nanomaterials	3	2
CH569	生物模擬材料	Biomimetic Materials	3	2
CH571	材料表面分析	Surface Analysis on Materials	3	1
CH573	環程序化學	Environmental Process Chemistry	3	2
CH574	氣膠學	Aerosol Science	3	2
CH575	燃料電池	Fuel Cell	3	2
CH577	化學蒸鍍技術	Chemical Vapor Deposition	3	2
CH584	高等生化工程	Advanced Biochemical Engineering	3	1
CH585	薄膜程序設計與應用	Design and Applications of Membrane Processes	3	2
CH586	環境生物技術	Environmental Biotechnology	3	1
CH588	太陽能技術	Solar Energy Technology	3	1
CH589	有機半導體材料特論	Special Topic on Organic Semiconductor Materials	3	1
CH592	微結構分析原理及技術特論	Special Topics on Principal and Technologies of Fine Structure Analysis	3	2
CH593	環境奈米觸媒特論	Special Topics on Environmental Nanocatalysis	3	2
CH594	導電高分子特論	Special Topics on Conducting Polymers	3	1
CH595	陶瓷材料特論	Special Topics on Ceramic Material	3	1
CH596	生化分離特論	Special Topics on Bioseparation	3	2
CH602	高分子聚電解質	Polymer Electrolytes	3	2
CH604	相變態	Phase Transformations	3	2
CH607	奈米材料製備與觸媒應用	Nanomaterial Preparation and Catalytic Application	3	1
CH801	智慧財產權	Copyright Protection	3	2

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