

Curriculum of the Master’s Program at the Department of Chemical and Materials Engineering, Chang Gung University (For students admitted in Fall, 2025)															
	Course Code	E / C	SUBJECT	Crt.	Grade	1Sem.	2Sem.		Course Code	E / C	SUBJECT	Crt.	Grade	1Sem.	2Sem.
	CEM009 CEM010	C	Research on Special Topics (1)(2)	2	1	1	1	Chemical Field/Professional	CEM710	E	Instrumentation and Control System Design	3	1	3	
									CEM350	E	Particulate Engineering	3	1	3	
	CEM011 CEM012	E	Seminar(1)(2)	4	1	2	2		CEM161	E	Enzymes and Cell Immobilization	3	1	3	
	CEM013 CEM014	E	Seminar(3)(4)	4	2	2	2		CEM360	E	Applied Industrial Microbiology	3	1	3	
									CEM102	E	Special Lecture in Practice of Chemical Industry	3	1	3	3
									CEM016	E	Theory and Design of Wastewater Treatment	3	1		3
									CEM540	E	Bioreactor	3	1		3
Chemical Field/Core	CEM030	E	Advanced Reaction Engineering	3	1	3			CEM053	E	Advanced Process Control	3	1		3
	CEM052	E	Advanced Transport Phenomena	3	1	3			CEM21Y	E	Design of Experiments	3	1		3
									CEM256	E	Battery and Energy Conversion	3	1		3
									CEM381	E	Chemical Process Simulation Practices	3	1		3
	CEM270	E	Advanced Thermodynamics	3	1		3		CEM039	E	Industrial Instrumentation and Control	3	1		3
									CEM260	E	Supercritical Fluids and its Applications	3	1		3
Materials Field/Core	CEM120	E	Advanced Organic Materials	3	1		3		Materials Field/Professional	CED005	E	Applied Industrial Microbiology	3	1	
	CEM123	E	Advanced Inorganic Materials	3	1	3									
								CEM172		E	Ceramic Materials	3	1	3	
								CEM131		E	Polymer Structure and Physical Properties	3	1	3	
College of Engineering		E	English Speaking and Presentation (I)	2	—	2		CEM153		E	Membrane Technology	3	1	3	
		E	English Speaking and Presentation (II)	2	—		2	CEM080		E	Opto-Polymers & Their Application	3	1	3	
		E	English Technical Writing (1)	1	—	1		BEM104		E	Biomaterial	3	1	3	
		E	English Technical Writing (2)	1	—		1	CEM132		E	Physical Metallurgy Principles	3	1	3	
								CEM091		E	Solid State Chemistry	3	1		3
								CEM452		E	Polymer Blends	3	1		3
								CEM454		E	Thin Film Processing	3	1		3
								CEM520		E	Functional Polymers	3	1		3
								CEM025		E	The Photoelectrochemical Technology	3	1		3
								CEM024		E	Nanobiotechnology	3	1		3
								BEM129		E	Surface Analysis Technology	3	1	3	
								CED008		E	Clinical Applications of Biomedical Engineering and Materials	3	1	3	
								CEM040	E	Applications of Nanobiotechnonlgy in Medicine	2	1	2		
									E	Equipment-advanced technology of semiconductor	3	1	3		
								Others Field/Professional	CEM201	E	Instrumental Analysis Special Topics	3	1	3	
									CEM036	E	Introduction to Energy Technology	3	1	3	
									CEM740	E	Special Topics in Advanced Electrochemistry	3	1	3	
									CEM571	E	Biochemical Engineering	3	1	3	
									CEM760	E	R&D and patents pratice	3	1		3
									BEM113	E	Animal and Insect Cell Culture	3	1		3
Remarks															
	1 At least 40 credit hours are required to receive Master degree. (1)2 credit hours from the required courses.(including Research on Special Topics (1)(2)) (2)32 credit hours from the elective courses. (3)6 credits of thesis.(grant upon graduation)														
	2 Max.of 3 credit hours outside of CME Department and Biomed Graduate Institute are counted for graduation requirement.														
	3 Students have to take at least 1 course from 5 core elective courses.														
	4.1 Seminar (1) (2) (3) (4) should be taken during the master program study.														
	4.2 Students who graduate earlier than regular two years may waive Seminar (3) (4) courses, but still need to obtain 40 credit hours to fulfill graduation requirement.														
	5 International students may take elective courses in English provided by other departments/graduate institutes of CGU toward graduation requirement, within the caps of 12 credit hours for M.S. students and 9 credit hours for Ph.D. students. These courses are subject to be reviewed by advisor and graduate student affairs committee. This regulation applies to the international students admitted through the international student admission process.														
	6 All graduate students must pass/meet the English proficiency test/requirement as outlined in "English Proficiency Assessment for Foreign Students, College of Engineering, Chang Gung University".														
7 E:Elective / C:Compulsory															