

## Course List for international Master of Science (MS) Degree Program in Electrical Engineering Department, Chang Gung University

( For 2022 Calendar Year Admission)

R: Required; E: Elective

Fields	R/E	Course Title	Credits	Year of Class	1st Semester	2nd Semester	Fields	R/E	Course Title	Credits	Year of Class	1st Semester	2nd Semester
College elective course	E	English Technical Writing	2	1	1	1	General Requirement	E	Electronics Circuits Design*	3	1st	3	
	E	English Speaking and Presentation(1)(2)	4	1	2	2		E	Advanced English Writing	4	2nd	2	2
General Requirement	R	Seminar (Research Project) (1)(2)	2	1st	1	1		E	Industry Training (1)	6	2nd	6	
	R	Seminar(1)(2)	4	1st	2	2		E	Industry Training (2)	6	2nd		6
	R	Seminar(3)(4)	4	2nd	2	2		E	Practical Case Study*	3	1st		3
	R	Master Thesis	6					E	Algorithms*	3	1st		3
Communications + Biomedical Engineering and Integrated circuit Systems	E	Digital Communications*	3	1st	3		Power and Control	E	Nano Circuit Design	3	1st		3
	E	Random Processes*	3	1st	3			E	Design of Micro-Sensors and Sensing Circuit Systems*	3	1st		3
	E	Digital Signal Processing*	3	1st	3			E	AI Chip Design*	3	1st		3
	E	Optical Fiber Communications*	3	1st	3			E	Artificial Intelligence and Pattern Recognition	3	1st		3
	E	Digital Image Processing*	3	1st	3			E	Medical Imaging	3	2nd	3	
	E	Error-Control Coding*	3	1st	3			E	VLSI Computer-Aided Design	3	2nd	3	
	E	Number Theory	3	1st	3			E	Embedded System Programming	3	2nd	3	
	E	Biomedical Electronics	3	1st	3			E	Biomedical Imaging System	3	2nd	3	
	E	VLSI System Design*	3	1st	3			E	Wireless Network	3	2nd	3	
	E	Software-Hardware Co-design	3	1st	3			E	Cryptography	3	2nd	3	
	E	Digital Silicon IP Design	3	1st	3			E	Network Security	3	2nd		3
	E	Introduction to System-on-Chip Design	3	1st	3			E	Adaptive Filter Theory	3	2nd		3
	E	Analog Integrated Circuits Design*	3	1st	3			E	Biomedical Information Processing	3	2nd		3
	E	Introduction to Optoelectronics*	3	1st	3			E	Medical Instrumentation	3	2nd		3
	E	Biomedical Signal Analysis	3	1st	3								
	E	critical thinking and problem solving	3	1st	3			E	Power System Analysis*	3	1st	3	
	E	Monograph on frontier communication systems*	3	1st	3			E	Linear System Theory*	3	1st	3	
	E	Wireless Transceiver: Principle and Design*	3	1st	3			E	Fuzzy Control	3	1st	3	
	E	Memory Circuit Design and Experiments	3	1st		3		E	Special Topics on Memory Circuit Design	3	1st	3	
	E	Communication Theory	3	1st		3		E	Advanced Power Electronics	3	1st	3	
	E	Optical Fiber Communications Laboratory*	1	1st		1		E	Power Electronics Laboratory*	1	1st	1	
	E	Wireless Communication*	3	1st		3		E	Artificial Neural Network	3	1st		3
	E	Optoelectronics	3	1st		3		E	Power System Stability and Control	3	1st		3
	E	Detection and Estimation Theory	3	1st		3		E	Electric Power Distribution Engineering*	3	1st		3
	E	Principle and Application of Computer Vision	3	1st		3		E	Solid State Energy Conversion	3	1st		3
	E	Advanced Error Control Coding and Applications	3	1st		3	E	Optimization Methods*	3	1st		3	
	E	Optoelectronic experiments*	1	1st		1	E	Digital Control*	3	1st		3	
	E	Advanced Computer Architecture	3	1st		3	E	Renewable Energy Technologies	3	1st		3	
	E	Low-Power System Design*	3	1st		3	E	Nonlinear Control	3	2nd	3		
	E	Bio-photonics Techniques*	3	1st		3	E	Advanced Topics of Electric Machines and Drives	3	2nd	3		
E	Embedded System and Experiment*	3	1st		3	E	Power Quality	3	2nd	3			
E	Pattern Recognition	3	1st		3	E	Electrical Machine Control	3	2nd		3		
E	Biomedical Chip Design and Application	3	1st		3	E	Electromagnetic Transients Analysis	3	2nd		3		
E	Design and Application of Mixed-Signal Integrated Circuits	3	1st		3	E	Adaptive Control	3	2nd		3		
Additional regulation	1. Graduation credits: 38												
	2. Credits of Required courses:10 【(including 8 credits of Seminar ,2 credits of Seminar (Research Project)】												
	3.6 credits of Master thesis will be awarded upon the completion of oral defense exam.												
	4. Credits of elective courses: 22												
	5. "E": courses opened for MS students and Senior student in undergraduate program, the other courses are for students in MS and Ph.D. programs.												
	6. A maximum of 9 credits from the field of Electrical and Computer engineering field (including Graduate Institute of CSIE, Electronic Engineering, and Electro-Optical Engineering) can be counted as part of their graduation credits.												
	7. Seminar (3) (4) is a required course during the study period. Graduates who complete their program early may be exempt from taking it, but they must still complete a total of 38 credits for graduation.												
	8. Foreign students can have a maximum of 50% of their graduation credits (excluding the thesis and seminar discussions) recognized for English-taught specialized courses within or outside their department. The courses they undertake must be approved by their advisor and reviewed and approved by the Graduate Student Affairs Committee to be acknowledged as graduation credits. This regulation is applicable exclusively to foreign students admitted through the foreign student admission channel for master's and doctoral programs.												
	9. Students who complete the designated credits by taking courses in the 'Memory Specialization Program' may have these credits counted towards their graduation credits in our department's master's program. However, students are still required to complete the mandatory courses in our department's master's program and either a thesis or a technical report as specified in our department's master's program graduation requirements.												
	10. "Enterprise Internship (1)(2)" is restricted to students enrolled in the 'Memory Specialization Program.' Students who are enrolled in the 'Memory Specialization Program' and take 'Enterprise Internship (1)(2)' can use it as a substitute for our department's 'Seminar (3)(4)' in the master's program, with a maximum of 4 credits recognized.												

Chair of Department :

Wen-piao Lin 09/25

2023/09/14