電機工程學系碩士班

109 學年度

最低修業年限	一年
應修學分數	24 學分(不含論文研討學分)
應修（應選）課程及符合畢業資格之修課相關規定	(一)畢業前必須修滿由指導教授同意之專業課程24學分(不包括論文研討學分)。外籍生得選修電機資訊國際碩士學程規劃之英語論文研討。 (二)專業必修：6 學分(必修科目一覽表如附件一)，必須皆為電機工程學系碩博士班、電信工程研究所、電控工程研究所(上述三個單位以下簡稱本系所)所開授之研究所課程；外籍生經由指導教授同意，得選修非本系所所開授之研究所課程作為專業必修科目。 (三)專業選修：18學分，其中9學分，必須皆為本系所所開授之研究所課程；其餘9學分，得選修校內與台聯大非暑修研究所課程。 (四)至外所選修本系所未開課程之規定：以選修電機資訊相關課程為限，其餘研究所課程皆須由同學提出申請，經指導教授同意後送本班核備。 (五)至外所選修本系所已開課程之規定：因特殊原因(如衝堂)，經指導教授同意並提出至外所修課之證明後送本班核備。 (六)校際選修課程僅限台大及清大非暑修課程，須經指導教授同意後送本班核備後，方可將該課程之學分計入畢業學分。 (七) 學術研究倫理教育課程採網路教學方式實施，為必修教育課程。 1、 學生於入學第一學期結束前，至「臺灣學術倫理教育資源中心」平台修習本課程，並通過課程總測驗成績達及格標準。 2、 未通過總測驗之學生，不得申請學位考試。 非上述規定之修課課程(如：經營管理-創業與興業家精神或暑修班或教育部核准 之學分班等)，本班不計入畢業學分。
備註	1.研究生每學期選課均須與指導教授討論並得其同意。以同等學歷入本班者，得由指導教授增加其畢業學分數。 2. 研究生畢業須選修並通過四個學期論文研討，但書條件如下： (1) 提前畢業者在學期間每學期必選修論文研討；若需於學期中辦理畢業離校者，得以退選此課程。 (2)正式核可之交換學生，核可出國期間得免修論文研討課程。

必修科目一覽表

組別	選課	必修科目
甲組	10 選2	1、超大型積體電路系統設計 2、類比積體電路設計 3、計算機結構 4、微機電系統技術導論 5、演算法 6、功率積體電路設計 7、通訊系統晶片設計 8、影像處理 9、醫學工程 10、數位信(訊)號處理
乙組	9 選2	1、演算法 2、計算機結構 3、嵌入式作業系統 4、計算機網路 5、排隊理論 6、機器學習 7、數位信(訊)號處理 8、雲端運算與巨量資料分析 9、隨機過程 10、資料科學

Master's Degree of the Department of Electrical and Computer Engineering

Academic Year 109

Minimum Term of Study	One Year
Minimum Credits	24 Credits

Curriculum and Regulations	1. Besides Seminar course in each semester, 24 credits of major field courses are required. International students can take English Seminar course of EECS international graduate program.
	2. Core courses: 6 credits must consist of core courses offered by ECE M.S., Institute of Communications Engineering, and Institute of Electrical Control Engineering (as listed in attachment), but International students may register core courses of other departments with admission from advisor to transfer credit.
	3. Elective courses: 18 credits are required, 9 credits of which must consist of courses offered by ECE Department. The other 9 credits can be acquired from courses in NCTU or University System of Taiwan (excluding courses during summer vacation).
	4. The student can take elective courses from other departments under the admission from advisor and director of the Institute when
	  i. The EEC related courses but ECE Department does not offer
	  ii. The courses that ECE Department has offered but timetable is conflict
	5. The student select interschool course only at NTU and NTHU (excluding courses during summer vacation).
	6. Research Ethics Education Online Program is compulsory education course.
	  (a) Students should take the education course from Center for Taiwan Academic Research Ethics Education and pass the examination before the end of the first semester.
	  (b) It is forbidden to apply degree examination without passing the education course.
	7. Besides the course of the above requirements, the others is not included in the credits required for graduation.

Notes	1. Students should plan course selection with advisor before selecting in each semester. 2. Seminar must be registered for four semesters. But those who graduate earlier only need to register for the semesters in their studies. 3. Exchange students can waive seminar in the exchange period.

Required Courses List

Group	Mode	Required Courses
I	Two of Ten	VLSI System Design and Application, Analog IC Design, Introduction to Micro Electro Mechanical Systems, Computer Architecture, Algorithms, Power IC Design, Chip Design for Communication Systems, Digital Image Processing, Biomedical Engineering, Digital Signal Processing
II	Two of Nin	Algorithm, Computer Architecture, Embedded Operating Systems, Computer Network, Queuing Theory, Machine Learning, Digital Signal Processing, Cloud Computing and Big Date Analytics, Random Process, Data Science

電機工程學系博士班

109 學年度

最低修業年限	二年
應修學分數	21 學分(不含論文研討學分)
逕博應修學分數	逕博生畢業前至少應修滿含碩士修業期間 36 學分(不含論文研討)，其中至少 24 學分必須是本系碩博士班所開之課程。
應修（應選）課程及符合畢業資格之修課相關規定	(一)畢業前必須選修並通過本系碩博士班(以下簡稱本班)開設之論文研討四學期以及由指導教授同意之專業課程至少 21 學分(不含論文研討)，其中 12 學分(含) 以上必須是本系開設之課程。外籍生得選修電機資訊國際碩士學程規劃之英語論文研討抵免本系開設之論文研討課程。丙組學生得修本班開設之論文研討二學期及生醫所規劃之生醫工程特論與論文研討抵免本班開設之論文研討課程各以 1 次為限。 (二)專業必修學分最低為 9 學分(必修科目一覽表如附件一)，須為本系所所開授之研究所課程。丙組學生經由指導教授同意得修習生醫工程研究所之課程作為專業必修學分。外籍生經由指導教授同意得選修非本系開授之研究所課程作為專業必修學分。 (三)至外系所選修本系所課程(含必修課程)之規定：因特殊原因(如衝堂或當年度本系所未開設此課程)，可事前經指導教授同意後至外系所修課。(申請表如附件二) (四)校際選修課程(僅限台大及清大開設之非暑修課程)，須經指導教授同意後方可將該課程之學分計入畢業學分。 (五) 學術研究倫理教育課程採網路教學方式實施，為必修教育課程。 1、學生於入學第一學期結束前，至「臺灣學術倫理教育資源中心」平台修習本課程，並通過課程總測驗成績達及格標準。 2、未通過總測驗之學生，不得申請學位考試。 (六) 擔任教學獎助生應修習教學實務課程，至多採計 1 學分。非上述規定之其他課程(如：經營管理-創業與興業家精神或暑修班或教育部核准之學分班等)，本班不計入畢業學分。 (七)非上述規定之修課課程(如：經營管理-創業與興業家精神或暑修班或教育部核准之
備註	博士生畢業前須修習並通過本校語言中心開設之研究生英文課程兩門或通過電機學院博士班英語能力考核。

必修科目一覽表

組別	選課	必修科目
甲組	8 選3	1、超大型積體電路系統設計2、類比積體電路設計3、微機電系統技術導論、4計算機結構5、演算法6、數位訊號處理7、功率積體電路設計8、通訊系統晶片設計
乙組	18 選3	1、演算法 2、計算機結構 3、嵌入式作業系統 4、計算機網路 5、排隊理論 6、機器學習 7、數位信(訊)號處理 8、隨機過程 9、雲端運算與巨量資料分析 10、檢測與估計理論 11、適應性訊號處理 12、陣列訊號處理 13、資料壓縮14、語音處理 15、多媒體通訊 16、聽語資訊處理 17、影像處理 18、小波理論與應用 19、資料科學
丙組	14 選3	1、近代生醫電學2、神經彌補裝置3、超音波導論與應用4、生醫信號分析和模擬5、醫學工程導論6、醫學影像學7、影像處理8、聽語資訊處理9、 人體結構、功能、臨床及醫療器材 10、生醫化學 11、奈米與生物技術-原理與實作 12、奈米生醫感測 13、生物微型檢測技術 14、生醫光學檢測-原理與實作

Doctoral Degree of the Department of Electrical and Computer Engineering

Academic Year 109

Minimum Term of Study	Two Year
Minimum Credits	21 credits(besides seminar courses)
Minimum Credits for Students who pursues a doctoral degree directly	A student who pursues a doctoral degree directly shall complete a minimum of 36 credits of which 24 credits are earned from the curriculums of this department's graduate school.
Curriculum and Regulations	A. **Students must select Seminars and Academic Dissertation Research for four semesters.** In additional to that, all students must complete 21 credits from courses that are approved by their advisors before graduation. Of the 21 credits, 12 credits must be from courses offered by Institute of ECE. International students can take English Seminar course from EECS international graduate program. Group C students have to study the seminar in this institute for at least two semester. Special Topics on Biomedical Engineering and the seminar in the Institute of Biomedical Engineering can transfer credit points of the seminar in this institute and both of them are limited to once, respectively. B. **Core** courses: 9 credits must consist of core courses offered by Institute of ECE (as listed in attachment). International student can take courses from other departments as their core courses under the agreement from the advisor. C. The student can take elective courses (with reasons, ex: The course that ECE Department has offered but timetable is conflict) from other departments under the agreement from advisor and director of the Institute. D. The student select interschool courses only at NTU and NTHU (excluding courses during summer vacation) and under the agreement from advisor and director of the Institute. E. Research Ethics Education Online Program is compulsory education course. F. (a) Students should take the education course from Center for Taiwan Academic Research Ethics Education and pass the examination before the end of the first semester. (b) It is forbidden to apply degree examination without passing the education course. G. The courses that cannot followed the above requirements is not counted as the credits required for graduation.
Notes	All doctoral students must pass two Graduate English courses from Academic Writing Center or pass English proficiency test offered by the College of ECE.

Required Courses List

Group	Mode	Required Courses
I	Three of Eight	1.VLSI System Design and Application, 2.Analog IC Design, 3.Introduction to Micro Electro Mechanical Systems, 4.Computer Architecture, 5.Algorithms, 6.Power IC Design, 7.Chip Design for Communication Systems, 8.Digital Signal Processing
II	Three of Eighteen	1.Algorithm, 2.Computer Architecture, 3.Embedded Operating Systems, 4.Computer Network, 5.Queuing Theory, 6.Machine Learning, 7.Digital Signal Processing, 8.Cloud Computing and Big Date Analytics, 9.Random Process, 10.Detection and Estimation Theory, 11.Adaptive Sign Processing, 12.Array Signal Processing, 13.Data Compression, 14.Digital Speech Processing, 15. Multimedia Communications, 16.Auditory and Acoustical Information Process, 17.Image Processing, 18.Wavelets Theory and Applications, 19. Data Science

III	Three of fourteen	1.Modern Bioelectricity 2.Neural Prostheses 3.Introduction to Ultrasound and Its Application 4.Biomedical Signal Analysis and Modeling 5.Int. of Biomedical Engineering Research 6.Medical Imaging 7.Image Processing 8.Auditory and Acoustical Information Process 9.Human Function Anatomy and Medical Instrument Application 10. Biomedical Chemistry 11. Nano and Biotechnology-Principle and Practice 12. Nano Biosensing 13. Biomedical Micro Analysis Systems 14. Miomedical Optical Biopsy-Principle