

電機工程學系碩士班

110 學年度

最低修業年限	一年
應修學分數	(一)專業課程24學分(含抵免學分)。 (二)以同等學歷入本班者,得由指導教授增加其畢業學分數。
應修(應選)課程及符合畢業資格之修課相關規定	(一)本班開設之論文研討3次,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。 (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。 (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。 修課以電機、資訊相關之研究所課程為限,選修課程需經指導教授同意。
備註	

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 110

Minimum Term of Study	One Year
Minimum Credits	A. 24 Credits (include credit transfer). B. Students who enter the Master's Degree with the same academic qualifications may have their graduation credits increased by their advisors.
Curriculum and Regulations	A. Students must select Seminars and Academic Dissertation Research offered by Institute of ECE for three times, but the conditions are: i. Those who graduate earlier need to register seminars for the semesters in their studies, and those who graduate during the semester can drop this course. ii. Exchange students can waive seminar in the exchange period. B. Core courses: 6 credits (as listed in attachment), must consist of core courses offered by ECE M.S., Institute of Communications Engineering, and Institute of Electrical Control Engineering. C. 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). Students should take the courses which are master's courses related to electrical engineering and computer science, and should approved by their advisors.
Notes	

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 Data Analytics, Random Process, Data Science

電機工程學系碩士班(輔所)(乙組)

110 學年度

應修學分數	12 學分
應修 (應選) 課程	電機系碩博士班乙組必修科目任選 2 門，本系所 (含電子所) 課程任選 2 門。除滿足輔所修課規定外，應敦聘本組教授指導並完成研究論文撰寫。

電機工程學系博士班

110 學年度

最低修業年限	2 年
應修學分數	(一)非逕博生：18學分(含抵免學分)。 (二)逕博生：30學分(含逕博前修讀之學分)，其中至少18學分必須是本系所開設之課程。
應修 (應選) 課程及符合畢業資格之修課相關規定	(一)本班開設之論文研討3次。逕博生可將碩士班修過之論文研討課程一併列入計算。丙組(二)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：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。 (三)專業選修：9學分，其中3學分必須是本系所所開設之課程。選修課程需經指導教授同意。 (四)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。
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
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、生醫微型檢測技術 14、生醫光學檢測-原理與實作 15、生醫材料

Doctoral Degree of the Department of Electrical and Computer Engineering

Academic Year 110

Minimum Term of Study	Two Year
Minimum Credits	A. Ph.D. students (not direct admitted Ph.D.):18 credits (include credit transfer). B. Direct admitted Ph.D. students:30 credits (include the credits you get before direct admitted Ph.D.) , and at least 18 credits must offered by Institute of ECE .
Curriculum and Regulations	A. Students must select Seminars and Academic Dissertation Research offered by Institute of ECE for three times. Students who are direct admitted Ph.D. can let the Seminars and Academic Dissertation already taken incorporate into calculation. Group C students have to study the seminar in this institute for at least two semesters. 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). Group C students can take the courses offered by Institute of Biomedical Engineering that are approved by their advisors . C. Elective courses: 9 credits. In additional to that, 3 of the elective courses must consist of courses offered by Institute of ECE. Elective course must approve by their advisors. D. All doctoral students must pass two Graduate English courses from Academic Writing Center or pass English proficiency test offered by the College of ECE.
Notes	A. 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.Queueing 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
III	Three of fourteen	1.Modern Bioelectricity 2Neural Prostheses 3Introduction to Ultrasound and Its Application 4.Biomedical Signal Analysis and Modeling 5.Int. of Biomedical Engineering Research 6Medical 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. Biomedical Optical Biopsy-Principle 15. Biomedical Materials