

MASTER OF SCIENCE IN ELECTRICAL AND COMPUTER ENGINEERING

Program

Prerequisites and Foundation Competencies

Students entering the program without an appropriate background in electrical or computer engineering may have to take additional bridge courses as prescribed during the admissions decision, in order to prepare for the advanced coursework required at the Master's level.

Program Requirements

Students in the MSECE program must complete 30 credits, with either a thesis option or with a non-thesis option. Students take one required course along with 12 credits of electives in ECE for the thesis option and 18 credits of ECE electives for the non-thesis option. Students take approved Engineering, Math, or Business graduate courses for the remaining credits. Several electives are available to students across several areas of specialization. Upon admission, students meet with an advisor to prepare a plan of study that will lead to a master's degree in electrical and computer engineering in the most expeditious manner while meeting the student's professional needs.

Thesis Option

Code	Title	Credits
ECEG 5415	Engineering Applications of Numerical Methods	3
ECEG 6971	Thesis I	3
ECEG 6972	Thesis II	3
Select 4 elective courses from ECE ¹		12
Select 3 elective courses from approved Engineering, Math, or Business graduate courses		9
Total Credits		30

Non-Thesis Option

Code	Title	Credits
ECEG 5415	Engineering Applications of Numerical Methods	3
Select 6 elective courses from ECE ¹		18
Select 3 elective courses from approved Engineering, Math, or Business graduate courses		9
Total Credits		30

¹ Electives may be chosen from courses listed under Electrical and Computer Engineering, as well as ECEG 5990 Independent Study, or any other graduate-level engineering, math, or business course, under advisement of the department chair or academic advisor.

ECE Elective Domains

Code	Title	Credits
Power and Energy		
ECEG 5361	Green Power Generation	3
ECEG 5377	Power Security and Reliability	3
ECEG 5385	Power Generation and Distribution	3
ECEG 5386	Fault Analysis in Power Systems	3
ECEG 5505	Advanced Power Electronics	3
Communications Systems		
ECEG 5379	Communication Systems	3
ECEG 5480	Wireless Systems I	3
Electronic Systems		
ECEG 5315	Nanoelectronics I	3
ECEG 5323	Thermal Management of Microdevices	3
ECEG 5335	Microelectronics	3
ECEG 5355	Sensor Design and Application	3
ECEG 5378	Electromagnetic Compatibility	3
ECEG 5405	Electronic Materials	3
ECEG 5510L	Product Design Lab	1
ECEG 5520L	System Design Lab	1
Computer Engineering		
ECEG 5303	Industrial Automation	3
ECEG 5325	Computer Graphics	3
ECEG 5346	Computer Systems Architecture	3
ECEG 5406	Advanced Digital Design	3
ECEG 5460	Network Programming	3
ECEG 5470	Network Embedded Systems	3
Biomedical Engineering		
ECEG 5309	Biosensors	3
ECEG 5311	Biomaterials	3
ECEG 5314	Introduction to Molecular Modeling	3
ECEG 5331	Biomedical Signal Processing	3
ECEG 5332	Biomedical Imaging	3
ECEG 5333	Biomedical Visualization	3
ECEG 5375	Bioelectronics	3
ECEG 5387	Instrumental Analysis in Biomedical Engineering	3
ECEG 5407	Computational Genomics	3

Plan of Study

Deviations from the required course list are permitted as a part of an advisor approved plan of study. Students must have an approved plan of study by the end of their first term. A plan of study may be changed at any time, with advisor approval.