ELECTRICAL ENGINEERING (MS)

Electrical and Computer Engineering Department (https://engineering.nyu.edu/academics/departments/electrical-and-computer-engineering/)

NYSED: 08822 **HEGIS:** 0909.00 **CIP:** 14.1001

Program Description

The headphones around your neck, the turn signal in your car, the webcam above your screen — each of these was made possible by an electrical engineer. In fact, all electronics devices receive the attention, the design, and the creative input of electrical engineers.

As a student in the master's in Electrical Engineering program, you'll use what you've already learned about physics, chemistry, and mathematics create the products of tomorrow. We support this kind of initiative by providing top-flight laboratories — home to developments in microwaves, VLSI design, and robotics — as well as a faculty dedicated to advanced research.

The program will prepare you for a professional career as an entrepreneur, a practicing engineer in industry, business or government at an advanced level, or to pursue a PhD degree in electrical engineering. You can choose a concentration from a number of stimulating fields, including the following:

- Communications, Networking and Signal Processing
- Computer Engineering and VLSI
- Energy systems and power electronics
- Electromagnetics and analog/RF/Biomedical circuits
- Systems, control, and robotics

Admissions

To apply for admission to any Tandon graduate program, please contact the Office of Graduate Admissions (https://engineering.nyu.edu/admissions/graduate/).

Entrance Requirements

Admission to the Master of Science in Electrical Engineering Program requires a bachelor's degree in Electrical and/or Computer Engineering from an accredited institution, with a GPA of 3.0/4.0 or higher. Students who do not have a prior BS degree in Electrical and/or Computer Engineering, but have a strong background in their chosen area of study, and sufficient mathematics preparation, may be considered for admission.

Program Requirements

The program requires the completion of 30 credits, comprised of the following:

Course	Title	Credits
Core Requirements		
Select two of the following courses:		6
ECE-GY 6113	Digital Signal Processing I	
ECE-GY 6253	Linear Systems	
ECE-GY 6303	Probability and Stochastic Processes	
ECE-GY 6713	Electromagnetic Theory and Applications	
ECE-GY 6403	Fundamentals of Analog Integrated Circuit Design	
ECE-GY Electives		
Select 18 credits of ECE-GY courses [1]		18
The following ROB-GY courses may count toward the ECE-GY Electives requirement:		
ROB-GY 6003	Foundations of Robotics	
ROB-GY 6213	Robot Localization and Navigation	
ROB-GY 6323	Reinforcement Learning and Optimal Control for Autonomous Systems I	
ROB-GY 6333	Networked Robotics Systems, Cooperative Control and Swarming	
ROB-GY 6423	Interactive Medical Robotics	
Free Electives		
Select 6 credits of courses from any science, engineering, or management department at NYU, except courses from the School of Professional Studies.		6
Total Credits		**30**

[1] A 3-credit course taken at other science or engineering departments of NYU that is closely related to electrical engineering may be used to substitute an ECE-GY course with the approval of the Program Director.

Note about CS-GY 6843 Computer Networking

The Electrical and Computer Engineering Department expects most students have covered the material of Computer Networking (CS-GY 6843) in an undergraduate course. Therefore, students can only take this course and have it counted towards the MS in Electrical Engineering with the approval of the Program Director.

Thesis, Project, Reading

Students are encouraged to participate in research by registering for a master's thesis (ECE-GY 997X, 6 credits, can be taken over two semesters), an advanced project (ECE-GY 9953 or ECE-GY 9963, 3 credits each, ECE-GY 9941, 1.5 credits) or a reading course (ECE-GY 9933, 3 credits). Students must secure a faculty member's commitment for advising such individual studies. Oral defense of the master's thesis with at least three professors (at least 2 ECE professors) in attendance is required. For the project and reading courses, a project report and an oral presentation is required. The total credits for thesis, projects, readings, and internships (see below) should not exceed 9 credits within the 30 credits required for the MS degree.

Internships

International students must register for an internship course (CP-GY 9911, CP-GY 9921, 1.5 credit each) to do an internship. Up to 3 credits of approved internships can be applied towards the 30 credits required for the MS degree. International students cannot do internship after they have completed the degree requirement. For an internship to be approved for credits, the internship job must provide industry and/or research experience relevant to the Electrical Engineering degree program. All internships must be approved and supervised by an ECE faculty member. Students must secure a faculty member's commitment for advising an internship. The internship supervisor should submit a midterm and a final term evaluation report to the adviser. The student must submit a project report to the faculty adviser upon completion of the internship for the evaluation and grading of the internship course. The total credits for independent studies including MS thesis, projects, reading, and internship

cannot exceed 9 credits. Note that CP-GY 9911 and CP-GY 9921 can be counted towards the ECE-GY course requirement. However, if a student has already taken more than 7.5 credits of independent studies, he/she will not be approved for another CP-GY course.

Sample Plan of Study

Course	Title	Credits
1st Semester/Term		
ECE-GY Core Course 1		3
ECE-GY Core Course 2		3
ECE-GY Elective		3
	Credits	**9**
2nd Semester/Term		
ECE-GY Elective		3
ECE-GY Elective		3
Free Elective		3
	Credits	**9**
3rd Semester/Term		
ECE-GY Elective		3
ECE-GY Elective		3
Free Elective		3
	Credits	**9**
4th Semester/Term		
ECE-GY Elective		3
	Credits	**3**
	Total Credits	**30**

Learning Outcomes

Upon successful completion of the program, graduates will:

1. Be prepared for a professional career as an entrepreneur, a practicing engineer in industry, business or government at an advanced level.
2. Have acquired breadth and depth across a number of electrical engineering subdisciplines. This is facilitated by requirements core courses, and electives, including suggested concentration areas.
3. Be prepared to pursue a PhD degree in Electrical Engineering.

Policies

Program Policies

Out-of-Department Courses and 5000-level ECE-GY Courses

Non-ECE-GY courses numbered in the 5000-level from other departments cannot be counted towards degree requirements, except with the approval of the Program Director. The total number of credits for 5000-level ECE-GY courses and non-ECE-GY courses cannot exceed 12 credits.

GPA Requirement

There are two Grade Point Average (GPA) requirements for the MS in Electrical Engineering. The first is the *Core GPA Requirement*. Students must earn a Core GPA of 3.0 or higher. i.e. students must earn a B average or better in their two core courses. The second GPA requirement is the *Cumulative GPA Requirement*. Students must earn a Cumulative GPA (overall GPA) of 3.0 or better in all courses taken.

Transfer Credits

No transfer credits are accepted towards the MS in Electrical Engineering.

NYU Policies

University-wide policies can be found on the New York University Policy pages (https://bulletins.nyu.edu/nyu/policies/).

Tandon Policies

Additional academic policies can be found on the Tandon academic policy page (https://bulletins.nyu.edu/undergraduate/engineering/academic-policies/).