COMPUTER SCIENCE/ COMPUTER ENGINEERING (BS/BS)

Department Website (http://cas.nyu.edu/engineering/)

NYSED: 33277 **HEGIS:** 0701.00 **CIP:** 11.0101

Program Description

Since the fall of 2010, the College's dual degree program with the NYU Tandon School of Engineering, formerly known as the Polytechnic School of Engineering, has offered highly qualified and motivated students who are technically oriented the opportunity to pursue both a liberal arts program with a major in science, mathematics, or computer science and a traditional engineering program. Upon completion of this five-year program, students receive both a BS degree from the College of Arts and Science and a BS degree from the NYU Tandon School of Engineering. Students with this combination of degrees are likely to find excellent employment opportunities.

It is crucial that students begin the required dual-degree coursework in their first year.

The available dual degree combinations are as follows:

- BS in Biology/BS in Chemical and Biomolecular Engineering
- BS in Chemistry/BS in Chemical and Biomolecular Engineering
- BS in Computer Science/BS in Computer Engineering
- BS in Computer Science/BS in Electrical Engineering
- BS in Mathematics/BS in Civil Engineering
- BS in Mathematics/BS in Computer Engineering
- BS in Mathematics/BS in Electrical Engineering
- BS in Mathematics/BS in Mechanical Engineering
- BS in Physics/BS in Civil Engineering
- BS in Physics/BS in Computer Engineering
- BS in Physics/BS in Electrical Engineering
- BS in Physics/BS in Mechanical Engineering

Students in the program complete all of the CAS College Core Curriculum requirements, with the exception of the foreign language requirement, from which they are exempted. (Their required mathematics and science courses automatically satisfy the Core's Foundations of Scientific Inquiry requirements.) There is usually some flexibility concerning the semester in which a given course can be taken. Detailed programs of study for each of the degree combinations are available on the program website for reference.

Admissions

New York University's Office of Undergraduate Admissions supports the application process for all undergraduate programs at NYU. For additional information about undergraduate admissions, including application requirements, see How to Apply (https://www.nyu.edu/admissions/undergraduate-admissions/how-to-apply.html).

Program Requirements

Course	Title	Credits
CAS Core + Tandon General Education Requirements		
EXPOS-UA 1	Writing as Inquiry	4
First-Year Seminar		4
Texts and Ideas		4
Cultures and Contexts		4
Expressive Culture		4
Major Requirements		
CSCI-UA 101	Intro to Computer Science	4
CSCI-UA 102	Data Structures	4
CSCI-UA 201	Computer Systems Org	4
CSCI-UA 202	Operating Systems	4
CSCI-UA 310	Basic Algorithms	4
MATH-UA 120	Discrete Mathematics	4
MATH-UA 121	Calculus I	4
MATH-UA 122	Calculus II	4
MATH-UA 123	Calculus III	4
MATH-UA 140	Linear Algebra	4
MATH-UA 262	Ordinary Diff Equations	4
PHYS-UA 91	Physics I	3
PHYS-UA 93	Physics II	3
PHYS-UA 95	Physics III	3
PHYS-UA 71	Introductory Experimental Physics I	2
PHYS-UA 72	Introductory Experimental Physics II	2
PHYS-UA 73	Intermediate Experimental Physics I	2
CS-UY 2124	Object Oriented Programming	4
CS-UY 2204	Digital Logic and State Machine Design	4
EG-UY 1004	Introduction to Engineering and Design	4
ECE-UY 2004	Fund. Of Electric Circuits	4
ECE-UY 3114	Fundamentals of Electronics I	4
ECE-UY 4001	ECE Professional Development & Presentation	1
ECE-GY 6913	Computing Systems Architecture	3
Design Project I		3
Design Project II		3
MA-UY 2224	Probability and Statistics for Engineers	4
CM-UY 1003	General Chemistry for Engineers	3
CM-UY 1001	General Chemistry for Engineers Laboratory	1
Electives		
Computer Science Electives (2)		8
Computer Science Restricted Electives (4)		12-16
ECE/CS-UY Elective		3
ECE-UY Elective		3
Humanities/Social Science Electives (2)		8
Total Credits		**155**

Sample Plan of Study

Course	Title	Credits
1st Semester/Term		
CSCI-UA 101	Intro to Computer Science	4
MATH-UA 121	Calculus I	4
EXPOS-UA 1	Writing as Inquiry	4

First-Year Seminar		4
	Credits	**16**
2nd Semester/Term		
CSCI-UA 102	Data Structures	4
Texts and Ideas		4
MATH-UA 122	Calculus II	4
EG-UY 1004	Introduction to Engineering and Design	4
	Credits	**16**
3rd Semester/Term		
CSCI-UA 201	Computer Systems Org	4
PHYS-UA 91	Physics I	3
PHYS-UA 71	Introductory Experimental Physics I	2
MATH-UA 123	Calculus III	4
MATH-UA 140	Linear Algebra	4
	Credits	**17**
4th Semester/Term		
CSCI-UA 202	Operating Systems	4
PHYS-UA 93	Physics II	3
PHYS-UA 72	Introductory Experimental Physics II	2
MATH-UA 120	Discrete Mathematics	4
MATH-UA 262	Ordinary Diff Equations	4
	Credits	**17**
5th Semester/Term		
CSCI-UA 310	Basic Algorithms	4
PHYS-UA 95	Physics III	3
PHYS-UA 73	Intermediate Experimental Physics I	2
ECE-UY 2004	Fund. Of Electric Circuits	4
CS-UY 2124	Object Oriented Programming	4
	Credits	**17**
6th Semester/Term		
Computer Science Elective		4
Cultures and Contexts		4
ECE-UY 3114	Fundamentals of Electronics I	4
CS-UY 2204	Digital Logic and State Machine Design	4
	Credits	**16**
7th Semester/Term		
MA-UY 2224	Probability and Statistics for Engineers	4
CM-UY 1003 & CM-UY 1001	General Chemistry for Engineers and General Chemistry for Engineers Laboratory	4
Societies and the Social Sciences		4
Computer Science Elective		4
	Credits	**16**
8th Semester/Term		
Expressive Culture		4
ECE-GY 6913	Computing Systems Architecture	3
CompE Restricted Elective		3-4
CompE Restricted Elective		3-4
	Credits	**13**
9th Semester/Term		
Design Project I		3
ECE-UY 4001	ECE Professional Development & Presentation	1
CompE Restricted Elective		3-4
ECE/CS-UY Elective		3
HU/SS Elective		4
	Credits	**14**
10th Semester/Term		
Design Project II		3
HU/SS Elective		4
CompE Restricted Elective		3-4
ECE-UY Elective		3
	Credits	**13**
	Total Credits	**155**

Learning Outcomes

Upon successful completion of the program, graduates will have acquired the following skills and abilities:

College of Arts and Science

1. Skills in writing computer programs and designing software systems.
2. An understanding of the foundational algorithms and data structures used in computer software.
3. An understanding of what is going on "under the hood" of computer software in terms of the underlying computer architecture and operating systems.
4. Deeper knowledge of some specific areas of computer science and its applications.

Tandon School of Engineering

1. Learn fundamentals of computer science theory and practice in order to contribute to industry, academic, and government activities.
2. Learn modern design and development techniques.
3. Enhance their base of knowledge with appropriate electives.
4. Develop laboratory and software skills for advanced project development and research activity.

Policies

Program Policies

Students may elect to withdraw from the dual-degree program in Engineering and complete only the College of Arts and Science Core and major requirements, thus earning one undergraduate degree from CAS. If students elect to withdraw from the dual-degree program and remain in CAS, they are no longer exempt from the CAS foreign language requirement and must factor this into their academic planning.

Also, if students elect to withdraw from the dual degree program and remain in CAS, any Tandon courses taken will count against each student's 16-credit allowance in the other divisions of NYU, and also cannot be applied toward the 64-credit UA residency requirement.

NYU Policies

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

College of Arts and Science Policies

A full list of relevant academic policies can be found on the CAS Academic Policies page (https://bulletins.nyu.edu/undergraduate/arts-science/academic-policies/).