

COOPERATIVE PROGRAM IN ENGINEERING (3-2 ENGINEERING)

Fordham College at Rose Hill and Fordham College at Lincoln Center offer a five-year program that combines a broad liberal arts education with professional training in engineering. The cooperative program in engineering is an educational affiliation between Fordham University and the School of Engineering and Applied Science of Columbia University, which enables students to prepare for careers in applied science or engineering. This plan leads to a B.A. or B.S. degree from Fordham as well as a B.S. degree from Columbia University. Fordham University also has an affiliation with Case Western Reserve University in Cleveland, Ohio.

Rose Hill students who enter this program may choose to major in chemistry, computer and information sciences, engineering physics, physics, mathematics, or the joint major in mathematics and computer and information sciences. Students at Lincoln Center typically major in either mathematics or the joint major in mathematics and computer and information sciences. The B.S. degree from Columbia University or Case Western Reserve is in one of the following fields: applied mathematics, applied physics, biomedical engineering, chemical engineering, civil engineering, computer engineering, computer science, earth and environmental engineering, electrical engineering, engineering and management systems, engineering mechanics, industrial engineering, materials science, mechanical engineering, and operations research.

The program consists of three years at Fordham and two years at the engineering school. Students who wish to enter the program should have completed a minimum mathematics level of pre-calculus before entering Fordham, since Calculus I (MATH 1206) and Calculus II (MATH 1207) must be taken in the first year. By the end of the junior year at Fordham, the student must have completed all of the major requirements. The cooperative program is very intensive, and it may be necessary for the student to take certain core curriculum courses during the summer at additional expense. Some courses taken at the engineering school fulfill some of Fordham's degree requirements. At Rose Hill and at Lincoln Center, both the Fordham and Columbia degrees are awarded at the end of the fifth year.

To retain membership in the cooperative engineering program at Fordham and to permit admission to the engineering college, the student must maintain a 3.0 cumulative grade point average and a 3.0 grade point average in mathematics and science courses. Admission to either Columbia or Case Western is not guaranteed. Columbia has the additional requirements that the student must maintain a 3.3 cumulative grade point average as well as a minimum grade of B in each pre-engineering requirement.

At the beginning of the spring semester of the junior year, the student must submit an online application for admission to the engineering college. If the student has maintained the required GPA and successfully completed the required academic program, then the program coordinator will send a recommendation for admission. Official transcripts must also be forwarded at this time. While attending classes at the engineering college, the student must maintain matriculation at Fordham. Students who choose to exit the program may remain at Fordham in their chosen majors.

Occasionally, a student wishes to apply for admission to the engineering school after graduation from Fordham. Such students will be treated as graduate students and will most likely be excluded from any financial aid considerations at the engineering school.

During the FCRH and FCLC New Student Orientations, a special session is held regarding the 3-2 cooperative program in engineering. All students interested in the program are expected to attend the session at their college.

Fordham is committed to supporting all students who are interested in pursuing the 3-2 cooperative program in engineering. Given the high standards required by Columbia and Case Western Reserve, it is important that students make adequate progress toward the requirements to be able to transfer at the end of their junior year at Fordham. In order to ensure academic success, a student may be removed from the 3-2 program by the director in the following instances:

1. If the student is not making sufficiently adequate progress toward a transfer to Columbia or Case Western Reserve, for example: their cumulative GPA is below a 3.0, grades in more than four pre-engineering required classes are below a B-, or they have not taken enough pre-engineering requirements by the end of each academic year.
2. If the student has not declared one of the required majors before the end of their first year (physics, engineering physics, chemistry, mathematics, computer science, or the joint math-computer and information science major).
3. If the student does not apply for transfer by the deadline during their junior year.

Removal from the program merely means the student will be expected to finish their four years at Fordham, and then with the help of the director, find alternative paths to a career in engineering.

For more information

Visit the Cooperative Program in Engineering webpage.

The Columbia University website for this program is: www.seas.columbia.edu.

The Case Western Reserve website for this program is: engineering.case.edu/desp/dualdegree.

Requirements

1. At least 27 credits in the humanities (fulfilled by the Fordham Core Curriculum).
2. A completed major in chemistry (Rose Hill), engineering physics (Rose Hill), physics (Rose Hill), mathematics (Rose Hill or Lincoln Center), computer and information sciences (Rose Hill or Lincoln Center), or in the joint major in mathematics and computer & information sciences (Rose Hill or Lincoln Center).
3. The following pre-engineering requirements for all intended engineering degrees;
 - Two years of calculus (MATH 1206 Calculus I, MATH 1207 Calculus II, MATH 2004 Multivariable Calculus I, and MATH 2005 Multivariable Calculus II)—can place out of some of these with AP credit or a placement exam.
 - One year of calculus-based physics with lab, choosing one of the following sequences:

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- PHYS 1601 Introduction to Physics I & PHYS 1602 Introduction to Physics II + lab: PHYS 1511 Physics I Lab & PHYS 1512 Physics II Lab
 - PHYS 1701 Physics I & PHYS 1702 Physics II + lab: PHYS 1511 Physics I Lab & PHYS 1512 Physics II Lab
 - NSCI 1701 Physics I & NSCI 1702 Physics II + lab: NSCI 1511 General Physics Lab I & NSCI 1512 General Physics Lab II
 - One semester of chemistry with lab (CHEM 1321 General Chemistry I & CHEM 1331 General Chemistry Lab I or NSCI 1321 General Chemistry Lecture I & NSCI 1331 General Chemistry Lab I)
 - One class in computer science in C++ (CISC 1600 Computer Science I & CISC 1610 Computer Science I Lab)
 - One class in economics (ECON 1100 Principles of Macroeconomics or ECON 1200 Principles of Microeconomics, which satisfy the Fordham Core Curriculum)
 - One class in English composition (ENGL 1102 Composition II)
4. Additional courses are required for the intended field of engineering at either Columbia or Case Western Reserve, please see the 3-2 Program website for more information.