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# Engineering

## Dual-Degree Program: Bachelor of Science in Chemistry or Physics from Seton Hall and Bachelor of Science in Engineering from NJIT

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### Why Should I be a Dual Major in Chemistry/Physics and Engineering at Seton Hall?

Seton Hall University offers a unique five-year dual-degree program in chemistry/physics and engineering with New Jersey Institute of Technology (NJIT) that significantly enhances your opportunities in an increasingly competitive job market. The dual-degree program is an outstanding choice for students who understand the value of a liberal arts degree combined with the technical knowledge gained in an engineering program. All chemistry and physics courses are taught at Seton Hall University by our Ph.D. faculty members. The chemistry and physics classes are small, and students receive highly individualized attention from dedicated faculty. Qualified students have the opportunity to actively participate in ongoing, federally funded research projects beginning in their sophomore year.

### The Curriculum:

In collaboration with NJIT, Seton Hall University offers seven dual-degree (3+2) programs in chemical engineering, biomedical engineering, civil engineering, computer engineering, electrical engineering, industrial engineering and mechanical engineering. Students study at Seton Hall for the first three years and then attend NJIT for two years to complete the engineering requirements.

### What Does It Take to Graduate?

All students in the program must fulfill the core curriculum requirements of the College of Arts and Sciences and the departmental requirements for a degree in physics or chemistry from Seton Hall University, as well as the requirements for the selected engineering major at NJIT. All students must major in physics; but those who wish to study chemical engineering must major in chemistry. The students follow either chemistry or physics core requirements for the first three years. They are also required to take selected NJIT courses before they transfer to NJIT.

### Career Opportunities:

Engineering students have internship and co-op opportunities while studying at both Seton Hall and NJIT. Upon graduation from NJIT, these students have wide ranges of career choices in major industrial, medical and engineering companies depending on their engineering degrees.

### How Do I Apply for Admission?

Complete your application to Seton Hall University and include the \$55 non-refundable application fee (\$45 if applying online). Freshman applicants must submit official high school transcripts and any college or university transcripts where credit was attempted, plus the results of the SAT I or ACT assessments. Transfer students must submit transcripts from each college or university where credit was attempted. Those with fewer than 24 earned credits must complete the freshman requirements. Applications are available at [admissions.shu.edu](http://admissions.shu.edu).

### Can I Get Financial Aid?

Almost 90 percent of the students who entered Seton Hall last year received some form of financial aid, and 75 percent of these students received money directly from the University. The four types of financial aid include scholarships, grants and discounts, loans, and part-time jobs on campus. For further information, visit [admissions.shu.edu/FinancialAid.htm](http://admissions.shu.edu/FinancialAid.htm) or call (973) 761-9332.



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## Physics/Chemistry Requirements for the Dual Degree Engineering Program

### Core Curriculum Requirements\*

- A. English Language (6 credits)
- B. Communication (3 credits)
- C. Mathematics (3 credits and prerequisites)
- D. Natural Sciences (6 credits) and Behavioral Sciences (6 credits)
- E. Western Civilization (6 credits), Foreign Language (6 credits) and American/African, Asian and Latino Civilizations/Foreign Literature/Advanced Language (6 credits)
- F. Ethical Questions (3 credits)
- G. Philosophy and Religious Studies (9 credits)

\* Please see Undergraduate Catalogue

### Physics Major — 30 hours, including:

PHYS	1701-1702	General Physics I-II
or		
PHYS	1705-1706	Principles of Physics I-II
PHYS	1811-1812	Physics Laboratory
or		
PHYS	1815-1816	Physics Laboratory and Data Analysis I-II
PHYS	2185	Introduction to Modern Physics
PHYS	2186	Wave and Oscillations
PHYS	2883	Electronics I
PHYS	3119	Mathematical Methods of Physics
PHYS	3121	Mechanics I
PHYS	3185	Electricity and Magnetism I
PHYS	3217	Modern Optics

#### Other Core Requirements

CHEM	1123-1125	General Chemistry I and Lab
CHEM	1124-1126	General Chemistry II and Lab
CSAS	1113	Computing for Science Majors
MATH	1401-2411	Calculus I, II, III
PHYS	2112	Physical Applied Mathematical Techniques
PHYS	3122	Mechanics II

### Chemistry Major (ACS) — 56 hours, including:

CHEM	1107-1108	Principles of Chemistry I-II
CHEM	2215-2216	Analytical Chemistry I-II
CHEM	3411-3412	Physical Chemistry I-II
CHEM	2321-2315	Organic Chemistry I and Lab
CHEM	2322-2325	Organic Chemistry II and Lab
MATH	1401-1411	Calculus I-II
MATH	2411	Calculus III
PHYS	1705-1706	Principles of Physics I-II
PHYS	1815-1816	Physics Laboratory and Data Analysis I-II
PHYS	2112	Physical Applications of Mathematical Techniques

NOTE: Please contact NJIT for information about the engineering requirements.

### Degree Requirements: 130 total credit hours

Students can minor or double major in any of the College of Arts and Sciences disciplines.

**For more information**, call an admissions counselor at **1-800-THE-HALL**, send an e-mail to [thehall@shu.edu](mailto:thehall@shu.edu) or visit [admissions.shu.edu](http://admissions.shu.edu).

To talk to a faculty adviser, contact the Department of Physics at (973) 761-9050 or [cundermi@shu.edu](mailto:cundermi@shu.edu) or the Department of Chemistry and Biochemistry at (973) 761-9414 or [snownich@shu.edu](mailto:snownich@shu.edu). Web sites: [artsci.shu.edu/physics](http://artsci.shu.edu/physics) or [artsci.shu.edu/chemistry](http://artsci.shu.edu/chemistry)