

Pre-Engineering — Dual Degree (3-2) Program



Illinois Wesleyan's dual-degree program combines the breadth and creativity of a liberal arts education with the specific and rigorous training required for a career in engineering. IWU has special affiliations with Washington University in St. Louis, Case Western Reserve University and Columbia University. IWU students are virtually assured admission to these programs if they meet all requirements for the engineering curriculum at the affiliated school. The institutions listed above are not the only options. Students may apply to transfer after three years to any engineering program; recent 3-2 students have pursued engineering at the University of Illinois and at Cornell University, as well as other universities.

After three years at IWU, 3-2 students move on to the engineering school of their choice for two additional years of engineering courses. In five years, students receive a Bachelor's degree from IWU and a second Bachelor's degree in engineering from the cooperating institution. Some students opt for a 3-3 program in order to earn a bachelor's and a master's.

Students can also work toward a standard four-year degree at Illinois Wesleyan, followed by direct entry into M.S. or Ph.D. programs in engineering.

Why Pre-Engineering at Illinois Wesleyan?

Illinois Wesleyan University attracts multi-talented, multi-interested students by offering the advantages of a university, but in a small, liberal arts college setting. Our student-faculty ratio and our core campus identity both ensure that IWU provides direct faculty mentoring to engage student interest, to promote habits of innovation, and to open further doors of opportunity. Our pre-engineering program also offers a nation-leading curriculum of "tech-oriented" instructional laboratories, allowing our students to develop an ever stronger background with a wide range of technologies and techniques, and the experiences of troubleshooting involved in improving experimental designs.

IWU students often find that the intellectual discipline and technical/research skills they develop within our pre-engineering program puts them at an advantage when they enter an engineering program. Our students also remark upon the degree to which our extensive exploration of project opportunities informs their ability to make key connections between disparate areas of engineering.

Illinois Wesleyan University students also have the benefits of a broad, liberal arts education. This significant contrast with traditional engineering curricula constitutes a real marketable edge for our students, imparting the vital skills needed for argumentative writing, for making nuanced presentations and reports, and for putting their work into a larger social context. As it turns out, the liberal arts philosophy of education also has a clear history of much stronger retention rates. That is, by celebrating the multiple interests of our

Courses Recommended for Pre-Engineering (your course schedule could deviate from this sample; your faculty advisor will work with you to match appropriate courses with your interests)

Mechanics

Electricity, Magnetism and Optics

Applied Analysis I and II

Mathematical Methods of Physics

General Chemistry

Modern Physics and Thermodynamics

Computer Science I

Differential Equations

Major requirements



“The Illinois Wesleyan pre-engineering program is ideal for students who wish to earn a professional degree in engineering while developing,

students, we find that their level of intellectual engagement is enhanced, and their chances of continuing are enormously strengthened. Of course, should a student opt, part-way through their collegiate studies, to pursue a career other than engineering, everything they have taken up to that point will still count towards their liberal arts degree (whereas students in traditional engineering curricula face losing credits they have built towards graduation, should they opt to change majors).

Put simply, the liberal arts philosophy of education much more fully celebrates exploration of student career options and personal interests, while the favorable class sizes and frequent student-faculty interactions allow our faculty to nurture individual interests and strengths.

Learning from a Quality Faculty

The following faculty serve on the Pre-Engineering Advisory Committee. Not only do they assist all pre-engineering students in preparing for the engineering school application and selection process, but they also teach courses related to pre-engineering preparation.

- **Bruno deHarak**, *Assistant Professor of Physics*
Ph.D. — University of Kentucky
- **Narendra Jaggi**, *Professor of Physics*
Ph.D. — University of Mumbai
- **Thushara Parera**, *Assistant Professor of Physics*
Ph.D. — Case Western University
- **Gabriel Spalding**, *B. Charles and Joyce Eichhorn Ames Professor of Physics*
Ph.D. — Harvard University

Putting Your Learning into Practice

A well-educated engineer is in high demand. In addition to traditional fields such as mechanical, electrical, chemical and civil engineering, new engineering specialties such as biomedical, alternative energy, water management, transportation, food production and optical engineering (lasers, photonics, and advanced imaging) are emerging. Graduates of 3-2 engineering programs generally advance rapidly in their careers because of their unique perspective and intellectual flexibility. Starting salaries are excellent for engineers with a liberal arts background, a technical degree and strong communication skills.

Preparation

Students thinking about engineering as a career should take as much mathematics and science as possible in high school. They should be prepared to enter the calculus sequence at IWU.

at the same time, strong liberal arts skills in areas that are not only prized by employers but are also valuable for living in this complex technological world: communication, critical thinking, problem solving, intellectual independence and self-directed lifelong learning.

Close interactions, both in classrooms and teaching laboratories, between our students and professors, and numerous opportunities for students to collaborate with faculty on research/development projects, enable our students to develop a strong foundation in the fundamentals such that they routinely excel when they transfer to the engineering institutions with which we are affiliated.”

Dr. Bruno deHarak

Assistant Professor of Physics



ILLINOIS WESLEYAN
UNIVERSITY

For Further Information, Write or Call:

Dr. Bruno deHarak

Assistant Professor of Physics
Illinois Wesleyan University
P.O. Box 2900
Bloomington, IL 61702-2900

309/556-3661

bdeharak@iwu.edu

[www.iwu.edu/majors/
pre-engineering.html](http://www.iwu.edu/majors/pre-engineering.html)