



UNIVERSITY OF  
**ILLINOIS**  
URBANA-CHAMPAIGN

# Grainger Engineering Day

Engineering Outreach Bureau

September 10, 2020

# Welcome to Grainger Engineering Day

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Today you'll learn about the different engineering majors, studying abroad, college classes, and campus life.



Selin



Senior in  
Systems Engineering  
and Design,  
Concentration in  
Healthcare

Alp



Senior in  
Nuclear Plasma and  
Radiological Engineering

Aditi



Junior in  
Chemical  
Engineering

Jacob



Freshman in  
Chemical  
Engineering

## Student Panel

Susan  
Larson



Ivan  
Favila



Dean Panel

# What year are you in high school?



Freshman

Sophomore

Junior

Senior

# Majors Overview

There are a total of 16 majors to choose from within the Grainger College of Engineering, and graduates work in nearly every industry.

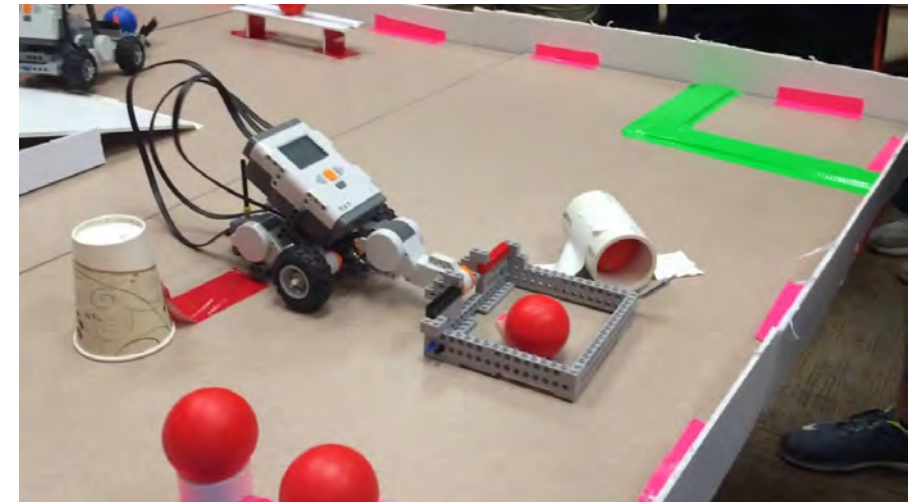
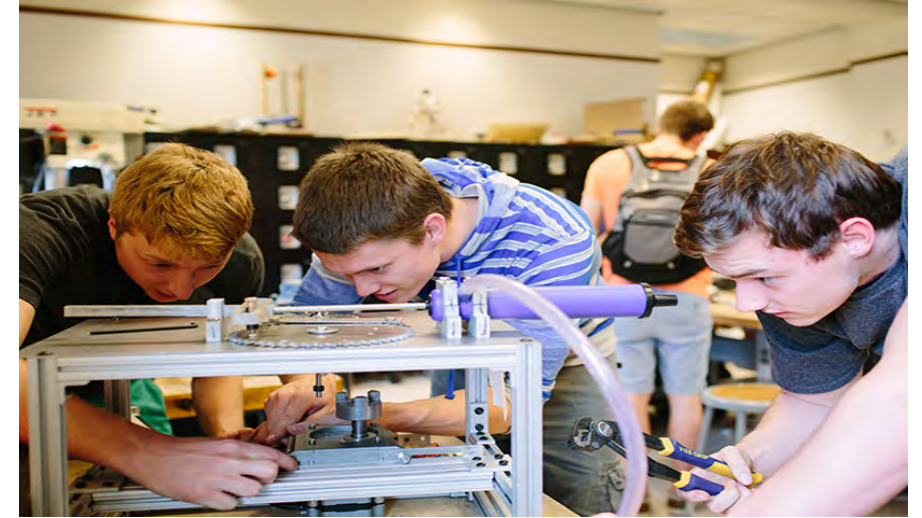


**Mechanical engineers apply physics and mathematics principles to study objects and systems in motion.**

Mechanical engineering is one of the most diverse fields of engineering, with areas of specialization ranging from bioengineering to combustion and propulsion.

ME students take a lot of physics and math-focused courses and take ME-specific courses in later years.

ME graduates work at SpaceX, Microsoft, Ford, and Boeing, among many other companies.



**Aerospace engineers study both aeronautics and astronautics, including aerodynamics, control systems, and other flight technology.**

Aerospace engineers work with rockets, satellites, air/space craft, and all the systems involved.

AE students take introductory math/science courses and take more specific AE courses in later years.

AE graduates work at SpaceX, Lockheed Martin, Blue Origin, and Boeing, among many other aviation and space-faring companies.





## **Chemical and biomolecular engineering transform one substance into energy and other useful materials.**

Chemical and biomolecular engineers study the processes of chemical reactions and how to streamline said reactions.

CHBE students take introductory math and science courses before delving into more chemistry classes and major-specific CHBE classes.

CHBE graduates work at ExxonMobil, Procter & Gamble, Clorox, and many other energy or chemical-producing companies.



**Agricultural and biological engineers integrate life and engineering to enhance systems involving food, water, and other aspects of the environment.**

ABE students prepare to create abundant and safe supplies of food, feed, water and energy.

Agricultural engineering students can choose one of seven specializations, ranging from nanoscale biological engineering to off-road equipment engineering.

ABE graduates work in hospitals, research facilities, and in crop production.





**Materials science and engineering students study materials and their possible applications, such as semiconductors and nanotechnology.**

MatSE students work on the forefront of technology and seek to understand the design, fabrication, and engineering of common materials.

MatSE students take introductory math, physics, and chemistry courses, and transition into major-specific MSE classes.

MatSE graduates work at Kraft Foods, 3M, Intel, Texas Instruments, among many other companies.



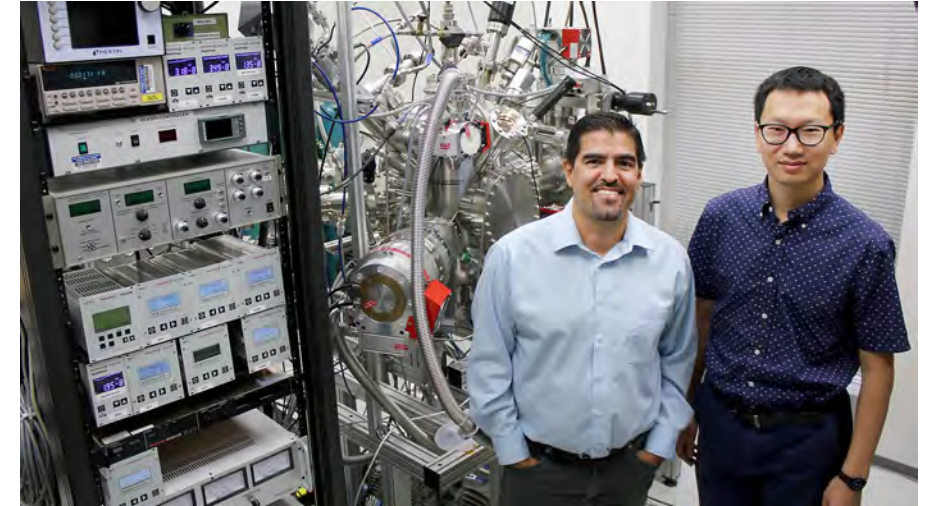


**Nuclear, plasma and radiological engineering is a diverse field of engineering with many different focus points.**

NPRE students can study nuclear power systems, radiation safety, medical technology and plasma technology.

NPRE students take introductory math, science, and physics courses before moving on to NPRE-specific classes in later years.

NPRE graduates can work at Intel, ASML (semiconductor company), and within the Department of Energy.

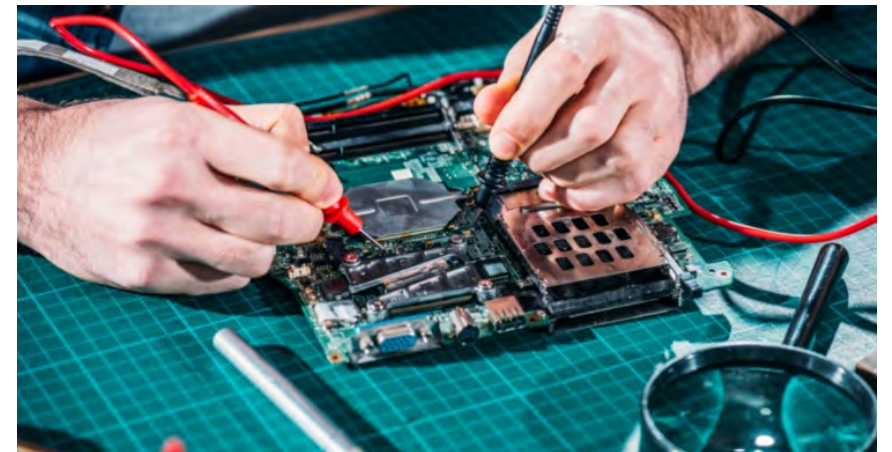


**Electrical engineering study the theory and applications of electricity and electrical systems.**

EE (double E) students seek to understand how electricity functions and is utilized in our world.

EE students take ECE classes focused on computer systems, digital logic, and semiconductors along with math and physics courses.

EE graduates work at Google, IBM, Apple, General Electric, and many other companies that produce electrically-powered products.



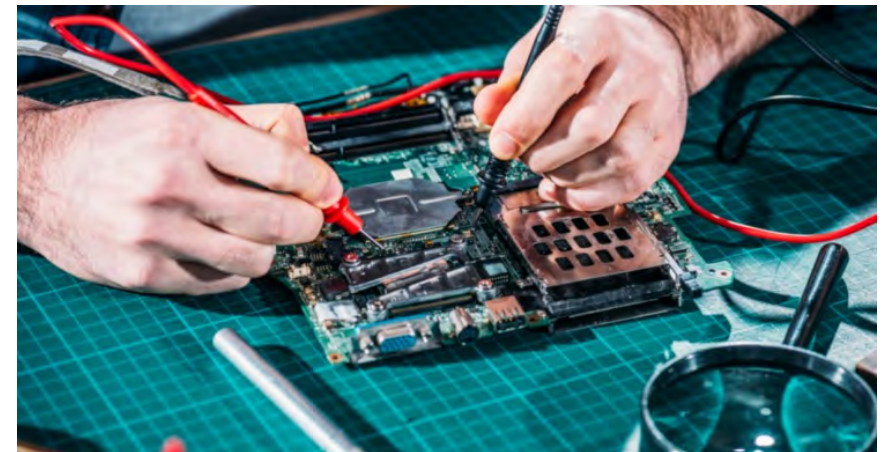


**Computer engineering is closely related to electrical engineering, with an emphasis on how electrical principles are applied to computer systems.**

CE students also take ECE courses and work closely with EE students.

CE students also take computer science courses alongside their math and science courses.

CE graduates can work at Intel, HP, IBM, or as programmers. Many companies that CE graduates work at also hire EE graduates.



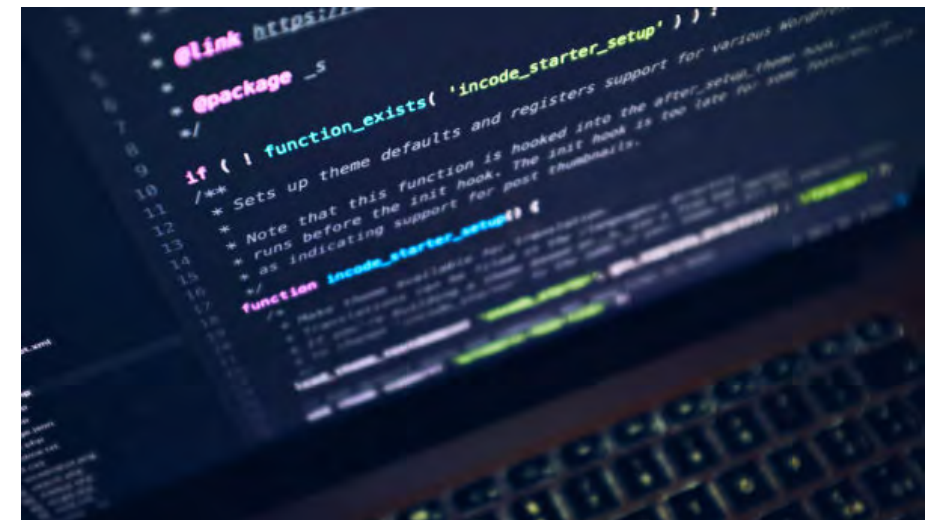
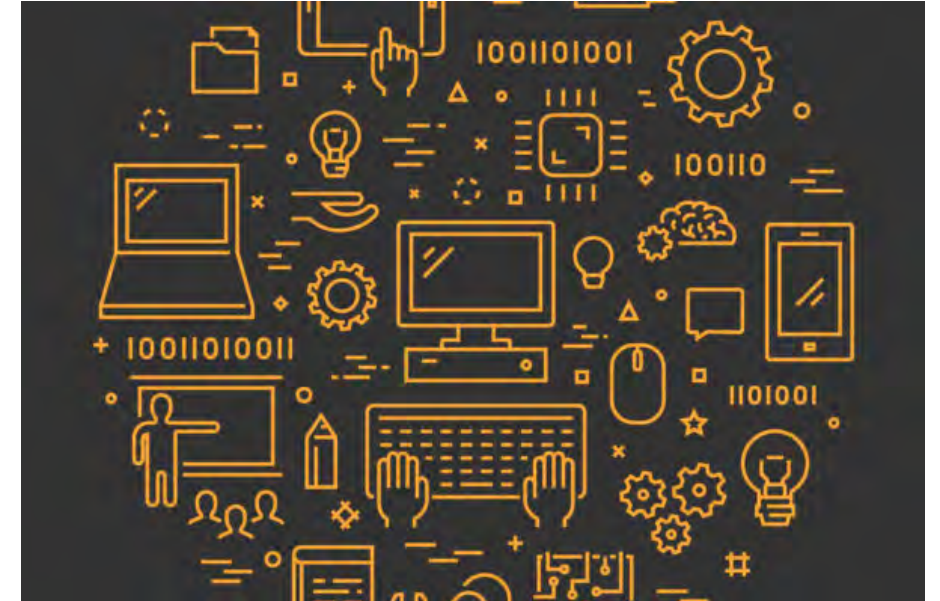


## Computer science students examine computational processes at a theoretical level.

CS students learn various programming languages and how to communicate with computers to achieve goals.

CS students take CS courses about algorithms and other CS principles, along with various math courses.

CS graduates can work at Microsoft, Google, Apple, Amazon, and any other tech-focused companies.

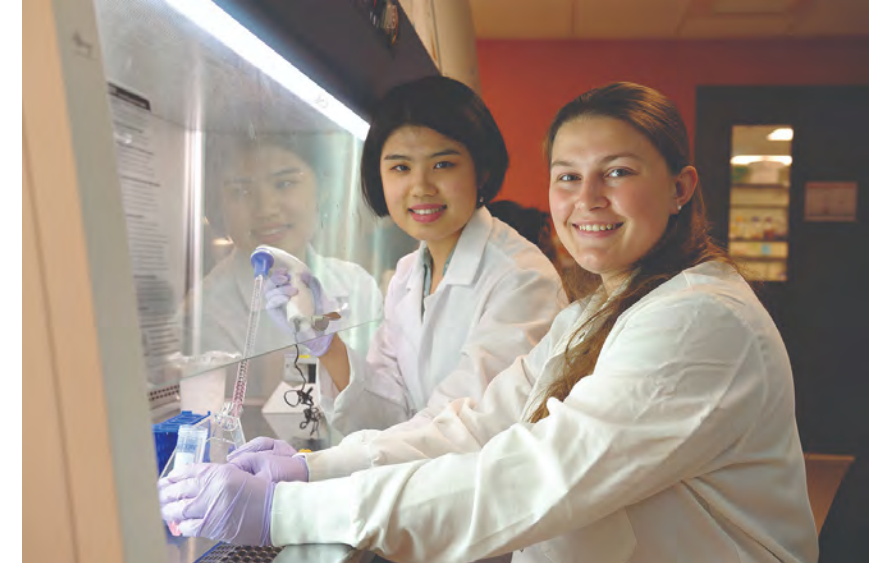


## **Bioengineering combines the methodology of engineering with the biological and medical sciences.**

BE students gain an understanding of biological phenomena and develop new technologies for biological systems.

BE students take BIOE courses along with math, science, and physics courses.

BE graduates can work at hospitals, medical research institutions, Johnson & Johnson, and many other medical/personal care companies.



Bioengineers focus on the application of engineering to medicinal processes and technology, while biological engineering focuses more on biological and environmental applications.

## Civil and environmental engineers study structures and construction methods.

Civil and environmental engineers have a responsibility for the design and construction of buildings, bridges, highway systems, and airports.

CEE offers specialization in:

- Energy-Water-Environment Sustainability
- Sustainable and Resilient Infrastructure Systems
- Environmental Engineering and Science
- Structural Engineering

CEE graduates go on to work at Comcast, Lockheed Martin, and construction, water utility, or transportation companies.

- Societal Risk Management
- Construction Engineering and Management
- Construction Materials
- Geotechnical Engineering
- Transportation Engineering
- Water Resources Engineering and Science



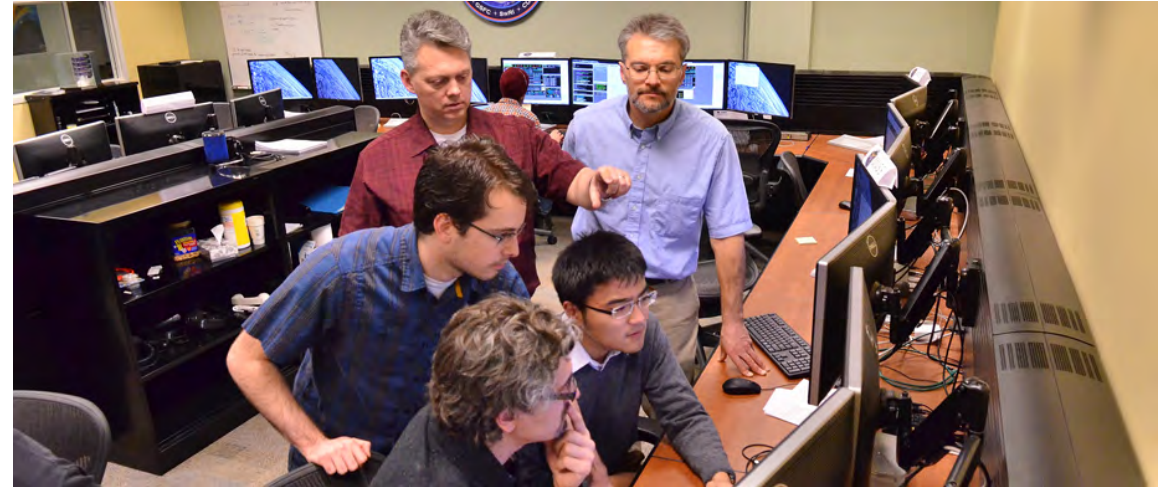


**Engineering physics is a major offered through the Physics department that studies physics and its applications to engineering.**

Engineering physics covers topics like mechanics, relativity, electromagnetism, quantum physics, and particle physics.

Engineering physics students take more advanced math and physics courses later into college.

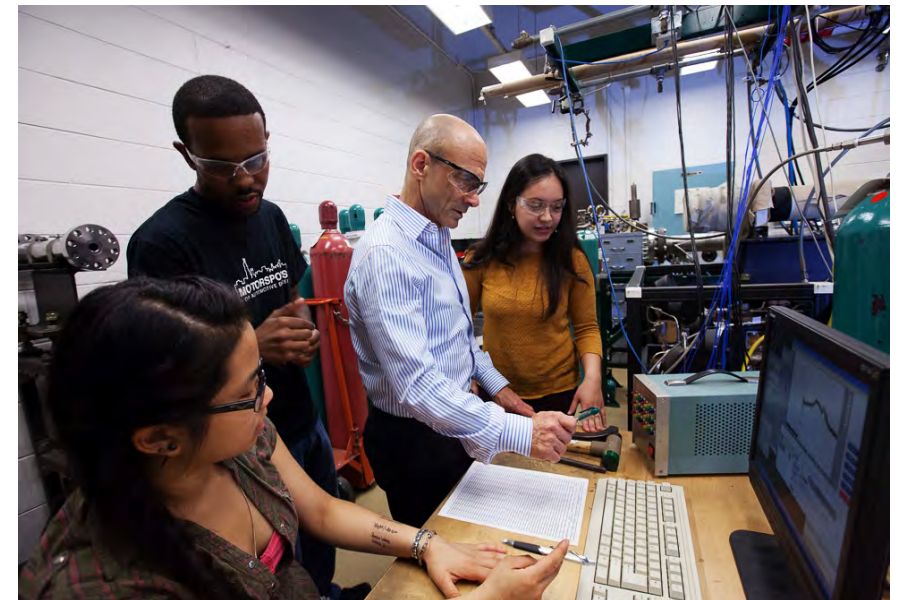
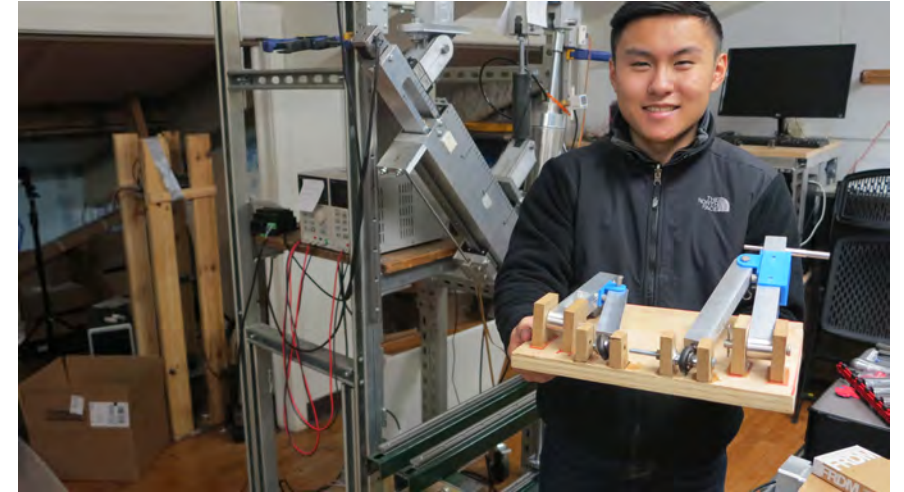
Engineering physics graduates go on to work in academia, the semiconductor and nanoelectronics industry, and many other fields.



**Industrial engineering focuses on the streamlining of processes in order to improve quality and productivity in the supply chain.**

IE students take SE classes alongside the usual engineering course load of math, science, and physics courses. These classes often involve the use of computer-aided design (CAD) programs.

IE graduates can work at Amazon, Caterpillar, Deloitte, ComEd, and many other manufacturing/transportation companies.

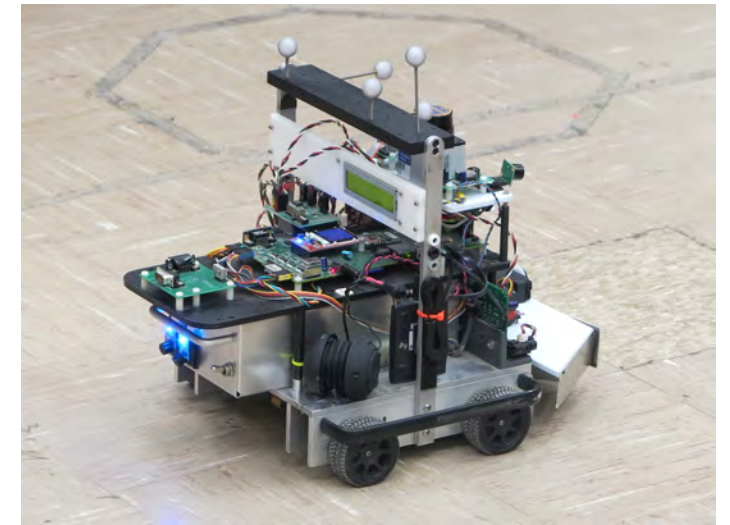




**Systems engineering studies engineering sciences and design, emphasizing knowledge of specific engineering fields to solve real-world problems.**

SE students can specialize in control systems, engineering administration, engineering marketing, pre-law and operations research.

SE graduates can go on to work at Wells Fargo, Lockheed Martin, Raytheon, Dell and many other systems-driven companies.

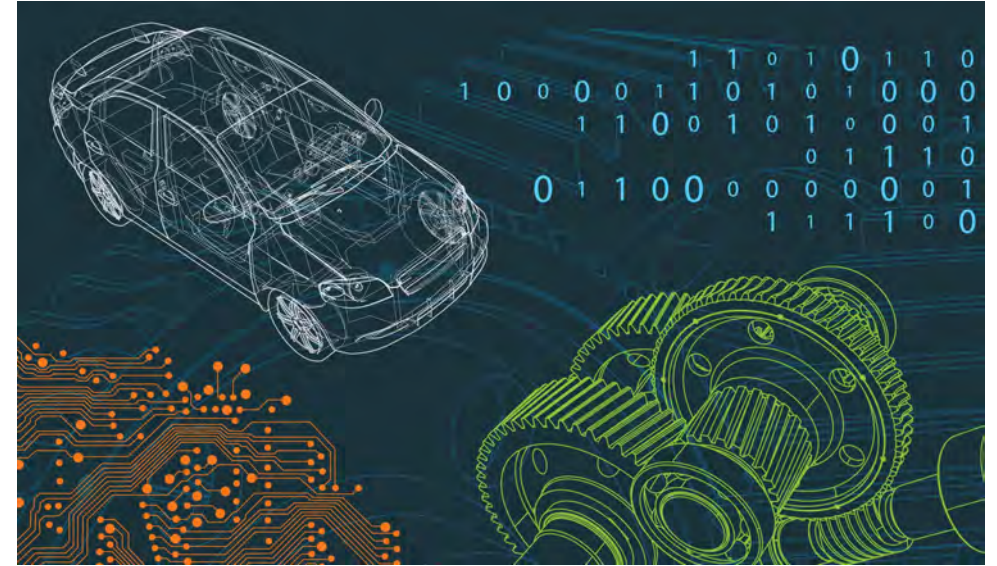




**Engineering undeclared students' first year is an opportunity to explore all the different engineering majors and choose the one right for them.**

Undeclared students take a class called Engineering 101, which further explains each type of engineering. After their first year, students can declare a major and jump right in.

Undeclared students can go on to work anywhere!



# Leaning towards a major?

- **Motion**

- Mechanical Engineering
- Aerospace Engineering

- **Technology**

- Electrical Engineering
- Computer Science
- Computer Engineering
- Nuclear, plasma, and radiological engineering

- **Nature**

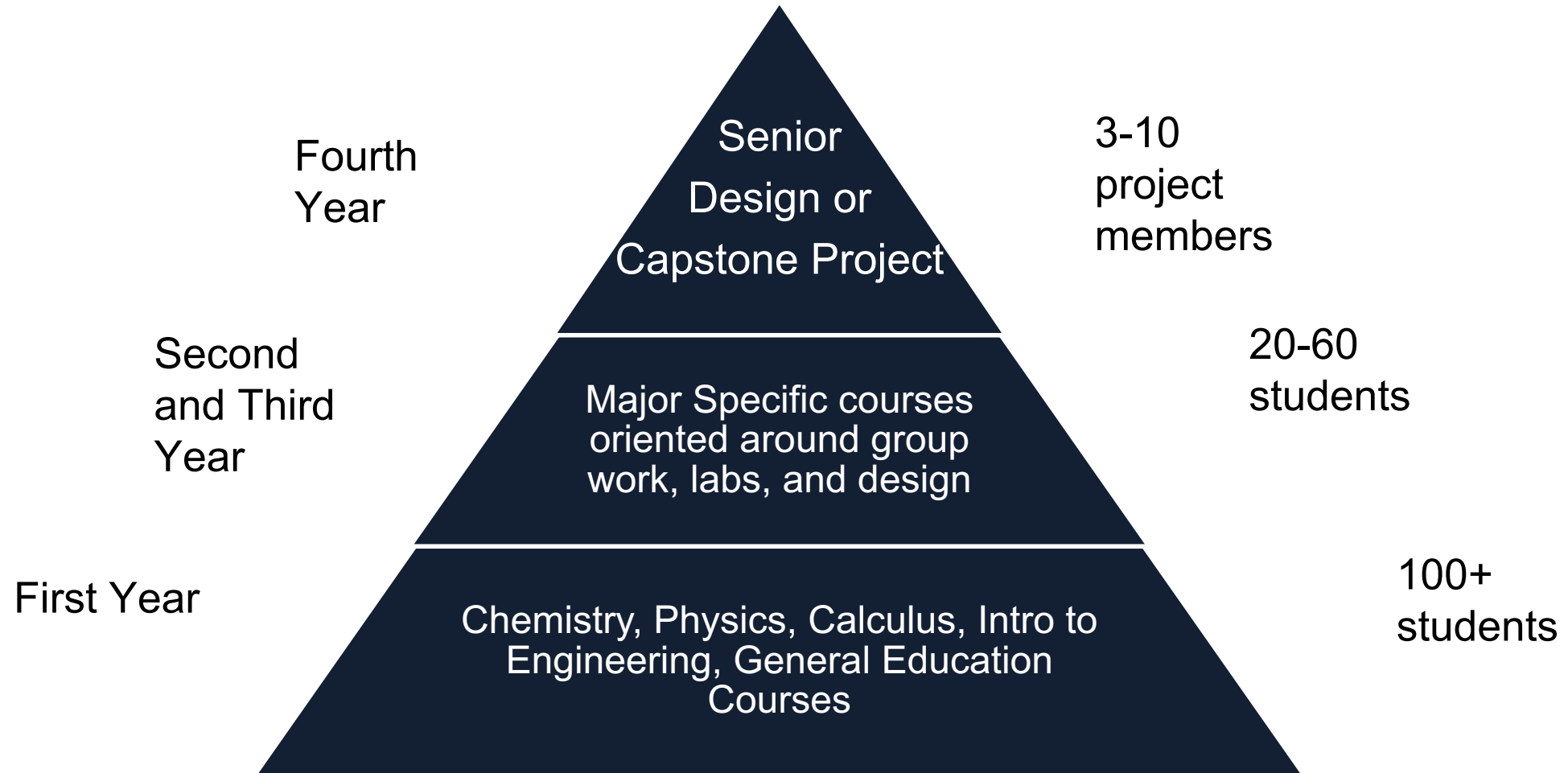
- Bioengineering
- Chemical and Biomolecular Engineering
- Materials Science and Engineering
- Civil & Environmental Engineering

- **Process**

- Industrial Engineering
- Systems Engineering and Design

# Your Academic Life.





What will my classes look like?

## Morrill Engineering Program

Empowers African American, Hispanic, and Native American engineering students, support their success as scholars, and fosters a collaborative community

## International Student Programs

Enhances academic, professional, and leadership development through networking among international and domestic students, faculty, and staff.

## Women in Engineering

Provides a welcoming and supportive environment for female students in the College of Engineering

## Center for Academic Resources

Provides academic support, enhances collaborative learning opportunities, and promotes positive influence through peer mentoring



# What resources are available to me?



**pwc**



Google

Where do Illinois Engineers Work?





How do I get a job?

# \$221 Million in Research Expenditures



Beckman Institute



Research Park

Can I partake in research as an underclassmen?



# Study Abroad

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Studying abroad is a great opportunity for students to experience unique places and cultures while still receiving a top-ranked education.



# Study Abroad

- Programs in 50+ Countries
- Scholarships available
- 27% of engineering students study abroad each year
- Most students are able to graduate in 4 years
- Questions? Email [ipeng@Illinois.edu](mailto:ipeng@Illinois.edu)



**Dublin, Ireland**  
**Beth Callis**  
**Spring 2019**





- Spring 2019 (Jan-May)
- **12 credit hours:**  
All counted towards degree requirements

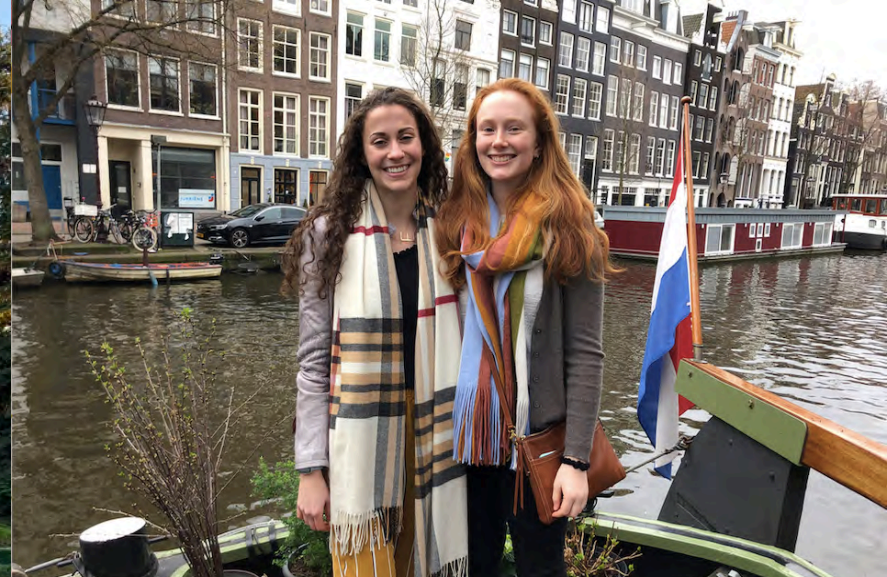
Thermodynamics, Mechanics, Irish culture, Environmental Policy

- **Housing:** on campus, apartment-style dorms (4 roommates)
- **Travel:** Ireland, UK, Netherlands, Germany, Switzerland, Italy, Spain, Portugal



# University College Dublin





**Travel**



# Are you interested in studying abroad?



Yes



No

# Housing and Campus Life.





## Living-Learning Communities

Communities with in-hall courses and specialized programs around a common theme.

LLC Overview

Global Crossroads

Health Professions

Business LLC

Honors LLC

Innovation LLC

Intersections

LEADS

Sustainability

Unit One/ Allen Hall

Weston Exploration

Women in Math,  
Science, and  
Engineering

# Where can I live on campus?



Are there Engineering-Specific Clubs?





Home to over 4,000  
Student Organizations



Home to 19 Big 10  
Sports Teams



Home to a large  
music department

What else can I do on campus?



I



Will our Illini be playing in  
Indianapolis in April 2021?

Yes

Yes,  
but in  
orange





# Want to experience campus from the comfort of home?

There are [drone tours](#), [guided tours led by Grainger tour guides and staff](#), and [live tours/Q&A with student tour guides](#).

These are all great opportunities to get a feel for the campus!





# Grainger College of Engineering

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