

Hexagon Tour Info Sheet

Dress Code:

Please dress appropriately. You're an engineer--so feel free to dress like one, but make sure you are high school/parent appropriate. Wearing penn gear is great! (do NOT wear clothing from another university!)

Remember:

Your job is to sell the school. Don't make up facts, but instead think about what makes Penn Engineering unique -- what sets it apart from other schools. Show vs. Tell. **Express what you love about Penn Engineering - be POSITIVE and ENTHUSIASTIC.**

Show up 10 minutes before your tour begins and greet visitors in the Towne 109 Lobby. Towne 109 is referred to as the Research and Academic Services (RAS) Office. Sign in at the front desk in Towne 109 and do not leave on your tour before telling someone at the front desk that you are about to leave.

Try and split up groups based on your majors -- if that's not possible, its ok -- but students like to pick tour guides that seem similar.

INTRODUCTION *outside of Towne 109*

- **Say: UNIVERSITY OF PENNSYLVANIA** (not UPenn, not Penn...)
- Introduce yourself. Name, hometown, major(s)/minor(s), extracurricular activities, and anything else you want them to know.
- Have everyone go around and introduce themselves, where they are from, and what major they might be interested in.
 - If it's a big group don't waste time. You can do a show of hands to find out what majors people seem to be interested in.
- Introduce Engineering School
 - Target: 400 students per engineering class / Total undergraduate engineering population is approximately 1800
 - 40% female, but differs from major (BE, CBE are 50%) The current freshman class (2023) is 41% women
 - 6 Departments:
 - i. Bioengineering
 - ii. Chemical and Biomolecular Engineering
 - iii. Computer and Information Science
 - iv. Electrical and Systems
 - v. Material Science and Engineering
 - vi. Mechanical Engineering
- There are two majors that are interdisciplinary you can apply into
 - i. Network and Social Systems: NETS is the world's first course of study to fully integrate the disciplines needed to design and analyze the complex

networks shaping our society. Students will study the technologies underpinning internet-search and electronic commerce, financial networks, and even exchanges such as power grids

- ii. DMD: Digital Media Design, talk more about it at Sig Lab
- BSE vs BAS: BSE is for students who want to pursue engineering further and earn a Professional Engineering degree; BAS is for students who have an interest outside of engineering but want to obtain a technical background and apply it to whatever field they end up pursuing. Typically about 90% BSE and 10% BAS. There are 10 BSE majors and 3 BAS majors. All engineering degrees require a minimum of 37 course units.
- Dual Degrees:
 - Coordinated dual degrees (require a minimum of 46 course units) - may choose to apply to an uncoordinated dual as an incoming freshman / coordinated dual degrees have required courses that link the two degrees
 - i. M&T (Management and Technology between Wharton and SEAS)
 - ii. VIPER (Vagelos Integrated Program in Energy Research between College and SEAS)
 - Dual Majors: Graduate with a single degree with two engineering majors. Available to all Penn students.
 - Approximately 20% of students pursue a dual degree. Students can apply to an uncoordinated dual degree after completing eight Penn course units. The two degrees obtained from the coordinated and uncoordinated dual degree programs are the same.
- Many students choose to pursue a minor – very manageable to add with proper planning
- Second major option with the college of Arts and Sciences-one degree and two majors
- Concentrations - are not required but are intended to provide students with the option to obtain a more focused education in a particular field of study or sub-topic w/in a given field. (Four courses from selected categories.)
- Curriculum: diverse/flexible for an engineering school. Engineers are required to take 7 social sciences/humanities and tbs (tech, business and society)
- Accelerated Masters Program – 3 graduate courses may be applied to both the undergrad engineering degree and graduate engineering degree. Must complete all your undergraduate degree requirements in 8 semesters (or 10 semesters if dual degree student). Approximately 22% of our students pursue an AM.
- Advising
 - Peer advisor, faculty advisor- both assigned freshman year based on major
 - Walk-in advising in Towne 109-Monday-Thursday

COMPUTER LABS - *In front of the fishbowl*

- Point out the fishbowl
- Talk about other labs around the Engineering Quad
- Remote Desktop Connect
- MAC vs PC
- Engineering school is open 24/7 to students
- Each student has space on the server (S-Drive)

- Engineering applications on all computers (Ex: CAD)

CHEMICAL ENGINEERING-*walk down the stairs to the right of the fishbowl*

- Point out lab (do not go in)
- Goal: to understand and use chemical and biochemical reactions and the physical and chemical behavior of fluids and solids
- What people have done with CBE
 - Internships at companies like L'Oreal, Johnson & Johnson, and other pharmaceutical and cosmetic companies
 - Many go to medical school, research after graduating

STUDENT RESEARCH- *Walk down the posters by the Haptics Lab*

- Give some examples of research, talk about poster competitions
 - Research positions available as early as freshman year.
 - Talk about any research opportunities you have had or friends have had
 - Can work in labs, at hospitals, etc.
 - Sometimes, especially during the summer, you may get paid or receive course credit for research positions.
 - Rachleff Scholars program – students may apply at end of freshman year

MECHANICAL ENGINEERING-*Walk down the hallways and corner to where Modlab used to be*

- Analysis, design, and manufacturing of components, machines, and systems
- Curriculum supports basic groundwork in all aspects of mechanical engineering, but flexibility in the curriculum allows for specific study in aeronautics, robotics, computers, electronics, automatic controls, and materials
- Point out Laser Cutting Room: Any student may use after taking MEAM1010. Used for meam labs, clubs, seniors design
 - 3D printers and Laser cutters allow you to create geometries that cannot necessarily be machined. Great for prototyping.
- Point out machine shop on the right. Any student may use after taking MEAM2010. Used for senior design, clubs, and personal projects
- Point out GM under the stairs.
 - The GM lab is used for undergraduate and graduate Mechatronics course. Often considered one of the best taught and most useful classes at Penn. Students from all majors as varying from Bioengineering to Electrical.

ACCENTURE CAFE- *Walk out to the cafe*

- Talk a bit about the cafe and the food there-mention dining dollars accepted (especially great freshman year)
- Good place to study, eat, hang out, have meetings for class or clubs

Move into Levine (Point out how all the buildings are connected). Check to see if Wu and Chen is being used. If not, let the group sit down in there while you talk about 4 years in

Penn engineering, extracurriculars, and Weiss Tech House. Also a great time to elicit questions.

4 YEARS IN PENN ENGINEERING

1. Freshman year: assigned peer advisor and academic faculty advisor. Talk about roles.
 - a. Reiterate walk-in advising in Towne 109
 - b. Do not have to come in knowing your major, discuss ENGR 1010, a survey class that will introduce students to the engineering disciplines through hands-on laboratory experience. In addition, the course will provide tutorials on how to use important software packages as well as a "Professional Preparation" module through studies of communication (writing and speaking skills), ethics, leadership and teamwork.
 - c. Mostly intro classes-math, physics, chemistry, intro to majors, classes tend to be larger
 - d. Decide on major by the end of freshman year
2. Sophomore year: start focusing on major, taking engineering classes
 - a. 95% of all engineering courses are taught by faculty. There are no graduate students teaching engineering classes although they do help with recitations.
 - b. Engineering class size ranges from 15 to 250. Large lectures include a recitation requirement – small in number – to review assignments, etc.
 - c. 12:1 Student: faculty ratio
3. Junior Year
 - a. Can go abroad. It's doable to graduate in 4 years, but need to plan in advance. Approximately 30-40 engineering students study abroad. The three most popular majors are CIS, MEAM and SSE. There is a designated advisor for engineering students who want to study abroad.
 - b. Classes continue to get smaller
 - c. Minors: many students have a minor, most popular = minor in math; other popular minors are Engineering Entrepreneurship, and Economics
4. Senior year
 - a. Senior Design
*****Talk about your own experience*****

CAREERS

Job offers – 96.2 with known outcomes -. 76% full-time employment, 17.3% continuing education and 3.9% seeking employment or graduate school. Average salary \$100,321 (Data from Class of 2021 Career Services Survey)

EXTRACURRICULAR ACTIVITIES

- About 32 student organizations in engineering alone
- Range from academic societies to community service to social & common interest groups.
 - Examples: Society of Women Engineers, Penn Engineering Council, CommuniTech, Siggraph, IEEE

- Give examples of programs ran by clubs: E-Week, E-Day SWE Corporate dinner
- Mention USABE – Underrepresented Students Advisory Board in Engineering
- Mention Advancing Women in Engineering (AWE)
 - Program started to recruit and retain women in engineering
 - Run by faculty and student advisory boards; orientation program from incoming freshman and a middle school computer camp

WEISS TECH HOUSE

- Resource center for all Penn students interested in innovation and entrepreneurship.
- WTH helps students bring products to the market; help with everything from lab space, obtaining patents, market analysis and corporate advice to free printing/copying.
- Invention competition every year where students present their inventions and win money to work on them.
- Past student inventors have started companies with their technologies after graduating. Products developed in the Weiss Tech House have been sold on QVC.

COMPUTER AND INFORMATION SCIENCE-*Walk through Levine to outside Moore 100*

- Provides students with an in-depth education in the conceptual foundations of computer science and in engineering complex software and hardware systems. It allows them to explore the connections between computer science and a variety of other disciplines in engineering and outside
- Computer Science is currently our largest department.

ENIAC and Moore Computer Lab

- Show ENIAC-joint project between US Army and Penn
- Unveiled in 1946. First all-electronic computer. Only one part of the original is on display. The rest is at the Smithsonian.
- Great work areas in the lab for when working on a group project. Classes will sometimes take place in the computer rooms.

DIGITAL MEDIA DESIGN

- Program that combines computer science with fine arts and design; focus on computer graphics and animation
- Students go on to work for animation companies like Pixar and Dreamworks or web companies like Google and Facebook.
- Point out the movie posters on the wall, all were worked on by Penn alum.

ELECTRICAL AND SYSTEMS ENGINEERING-*point out Detkin Lab*

- From the time you are a sophomore in ESE, you start taking classes in detkin. It is a great design space. The Lab coordinator, Sid, is one of the friendliest guys you will ever meet. He loves helping out with student projects and is more than willing to lend out microcontrollers and other components to students to help with their projects.
- Detkin is also the main design space for ESE350, intro to microcontrollers. In this class, students are challenged to build a unique hack using microcontrollers in a unique way.

Students have build robotic arms, self playing ukuleles, full robots, and other cool projects for the course.

- Systems-more mathematical; a lot of optimization and statistical analysis; can choose a focus/concentration such as finance & economics, health management, computer information.

Go up Moore stairs and straight to enter Skirkanich Hall. Go up the few stairs and then continue straight until you hit the big BE lab on your left. You may enter the lab even if a class is in session, but if this is the case enter quietly and do your talk outside. Also, if the lab director Seville is around he will speak to the group if you would like.

BIOENGINEERING

- Skirkanich- lab space with great technology and lab equipment
- Use engineering principles of analysis and design to solve problems in medicine and biology.
- In the BE labs, students learn about electrical circuits, using computers to assist data, explore properties of bone and skin and manipulate cells.

MATERIAL SCIENCE AND ENGINEERING

- Point out LRSM from the window
- MSE is understanding how the microstructures of a material influence their macroscopic properties.
- Super small, tight-knit department with an undergrad lounge and free printing!
- Material science includes topics in nanoscience and nanotechnology, polymers and biomaterials, ceramics and metals; learn to understand the relationship between microscopic and macroscopic properties of materials; a mix of applied chemistry, physics, and biology.
- Singh Center for Nanotech
 - Cost for building was \$92 million
 - One of five schools to receive grants for nanotech
 - Stat of the art facility- dust free/ vibration free
 - **Say you can show it to them after if they would like to stick around**

Walk into Towne and stop outside of Active Learning. Have them peek their heads in but speak outside.

ACTIVE LEARNING

- Penn now has some classes which are “active learning”
- There is a large active learning classroom (where the Engineering Library used to be)
- Active learning involves the students doing problems in class at large tables and working with their peers while the professor and TA circulate the room and answer questions.
- In the afternoon, it's a great space to work on group projects and problem sets.

OFFICE OF DIVERSITY, EQUITY AND INCLUSION (ODEI)

- Second floor Towne, room 211
- Founded in 1981, ODEI represents Penn Engineering's commitment to celebrating and increasing the representation of underrepresented minorities in the student body, faculty, and staff at the school.
- ODEI is a hub of academic and social activity where visitors may socialize, attend meetings, and hold emotional space for each other, as well as work on assignments.
- Freshman Coaching Program
- LSAMP Summer Research Program funded by the National Science Foundation for UG students
- Direct liaison to NSBE (National Society of Black Engineers) and SHPE (Society of Professional Hispanic Engineers), and USABE (Underrepresented Student Advisory Board in Engineering)
- K- 12 programs - Fife Academy coding clubs, Steppingstone Scholars Blended Learning Initiative (BLI)

NEW BUILDING -

TANGEN HALL

- 68,000 sq ft bldg at 40th and Sansom streets
- Collaboration between - Penn Engineering, Wharton and Stuart Weitzman School of Design - open to all UG, grad and doctoral students
- Supports entrepreneurship w/ collaborator and maker spaces
- Its open design encourages development and experimentation
- Programs housed in Tangen include Venture Lab, Goergen Entrep Management Program, Weiss Tech Hub and Sol C. Snider Center
- The building includes a digital studio and labs, a fabrications studio and labs, a retail lab, 3D printers, and a food innovation lab

WRAP UP- Bring them back to Towne 109.

- say something about your experience at the **University of Pennsylvania** (not Upenn, not Penn, **include the words University of Pennsylvania**)
- Thank them for visiting
- Ask if they need directions anywhere or suggestions for restaurants, etc.

GENERAL TIPS

- If you don't know the answer to a question, **don't make up information**
 - Tell the visitor that you are not certain and you do not want to give them the incorrect information, but you would be happy to help them find the answer after the tour.
 - The best person to ask is Ellen Eckert in Towne 109.
- Also, remind them that they can check out the SEAS website that is always up to date.
- Talk about yourself! **Personalize the tour**, talk about a lab project that you did, a class you took that you really like, a professor that you love
 - They can find Penn stats online. Make the tour personal

- **Try not to depend on the sheet.** It's better to forget to say something than to reading off the sheet the whole time. Read this over before the tour and then do not bring it with you.
- Don't put down other schools and try not to name specific schools that you applied to. This tour is about Penn. Stick to Penn and stick to what you know. **As a tour guide, you are the face of Penn!**