**PI TAU SIGMA ANNUAL CHAPTER REPORT**

**2018-2019**

**Illinois Alpha**

## A. Initiations

PTS Illinois Alpha invited candidates who had obtained a minimum of 60 credit hours and had maintained a minimum 3.5/4.0 GPA to initiate into our chapter at the beginning of each semester via an email written by the chapter president. This email additionally invites these potential initiates to a meeting at which initiation requirements are outlined and all chapter officers are introduced.

### *1. Initiation Requirements:*

Illinois Alpha's initiation requirements are such that the initiate gains exposure to the variety of chapter activities. Initiates are required to attend at least one social event, two service events, and one new member event. Initiates must attend a certain number of events to accumulate points and those who attain a certain point value are invited to initiate into the Illinois Alpha chapter. This point requirement serves to encourage greater participation in chapter events and bonding between members of the society.

### *2. Initiation Ceremony:*

Attendance at the initiation ceremony is required, and is typically held on the last day of classes each semester. 16 new members were inducted in the fall and 11 new members were inducted in the spring. Business professional attire is required for all participants. During the ceremony, initiates are led with their eyes closed into a dimly lit room and line up across the front of the room. The executive board then instructs the initiates in the code of ethics that all members of Pi Tau Sigma must uphold, and initiates individually pledge to do so. The Pi Tau Sigma coat of arms and emblem are then introduced and explained. Then initiates are taught the secret handshake and presented with a pin, t-shirt, and key. Initiates are then treated to an Olive Garden dinner.

## B. Chapter Activities

### *1. Service*

*a. Charity BBQ*

Twice a year, our chapter holds a two week long barbecue to raise money for a charity organization. This year, we chose to donate to the United Way of Champaign County. At these barbecues, we sell bratwurst, hamburgers, hot dogs, cheeseburgers, chips, and drinks to passerby. Initiates and members grill, collect money, and serve customers.

*b. Booker T. Washington Technology and Engineering Club*

Every year, our chapter participates in the BTW Technology and Engineering Club. This is broken up into two groups of students, one for K-2$^{nd}$ graders and the other for 3$^{rd}$-5$^{th}$ graders. The structure of the club this year consists of two separate, six-week sessions, one in the fall and one in the spring. In conjunction with our department's chapter of ASME, the STEM advisor at BTW academy, and Joe Muskin, the Outreach Coordinator for the MechSE department, we developed a curriculum that includes hands-on activities to explain a variety of science and engineering concepts. The topics covered included chemical reactions, hydrophobic materials, wire-coil motors, conductivity, non-Newtonian fluids, wind power, and fluid density among others. Each of these topics was introduced with a short, 5 minute presentation of the basics of the topic, and then a 30 - 40 minute, hands-on activity. PTS and some members of our chapter have received service awards from our department due to our efforts with the engineering club. A few reports can be found on the department newsletter regarding our events. We will continue our involvement with Booker T. Washington in the future, and are excited to be a part of such a valuable initiative.

*c. Family Engineering Nights/Picnics*

Family Engineering Night or Picnic (depending on the time of day) is similar to BTW engineering club in that it too offers demonstrations to instruct elementary school students in engineering and science concepts. The interest in these Family Engineering Nights arose because of the success of the afterschool engineering club, and our volunteers were asked to extend our service to students in the area. In the fall semester, the Family Engineering Night was hosted at Booker T. Washington. Over 100 students and their parents participated in activities hosted by Pi Tau Sigma jointly with our local chapter of ASME. Families were broken down into groups and they could pick which activities to participate. Each of the activities would take about 25 minutes. The duration of each event was about 3 hours.

*d. Engineering Open House*

Every year our society creates four projects, further discussed later, for exhibition and competition at Engineering Open House, an event spearheaded by the UIUC's Engineering Council. This is the largest science fair in the country, and many student organizations create exhibits for the enjoyment and education of the general public. Thousands of visitors come to campus to see EOH every March. This year we exhibited a demonstration on material properties, a penny crusher, and a ballista. Additionally, we built a robot for the Midwest Robotics Design Competition, which takes places at EOH. This year EOH took place on March 8$^{th}$ and 9$^{th}$.

## 2. *Departmental Involvement*

*a. Student Society Luncheons*

The president of our chapter of PTS participates monthly in the MechSE Student Society Luncheons, in which representatives from each of the MechSE-affiliated student societies meet to discuss departmental activities and resolve student concerns. This has given rise to much beneficial collaboration between societies for various events, some of which are discussed later on in this document.

*b. MechSE Forum*

Every fall semester, PTS hosts a panel consisting of the department head, undergraduate programs advisors, the head of facilities, and the department makerspace director. Students in the department are able to ask questions and express concerns about curriculum, design courses, facilities, and other departmental issues. The department always appreciates this opportunity to gather student feedback.

*c. Joint Events with MechSE Societies*

i. Broomball and Sand Volleyball

Illinois Alpha has also competed in various sport activities with other MechSE societies, as part of an informal tournament. This is a great way to promote bonding with the department!

ii. Corporate General Meetings

We have also cohosted meetings with representatives from companies such as Whirlpool with Women in MechSE and Phi Sigma Rho, as well as Shell and Kimberly-Clark alongside ASME. These companies have been kind enough to provide attendees with meals and activities such as making mug cakes.

iii. Homecoming Tailgate

In the fall, we worked with ASME to have a tailgate in the morning of the homecoming football game. Members from both societies enjoyed freshly grilled food and games before heading into the stadium for the game.

*d. Graduate Student Panel*

Additionally, we hosted a panel of current graduate student PTS members so that students in the department interested in graduate school and academia had the opportunity to ask questions about the application process and grad student life.

*e. Scholarships and Awards*

Once again, PTS awarded scholarships to worthy recipients, and many PTS student won departmental scholarships and collegiate awards for their service, academics, and involvement throughout the campus.

Scholarships directly awarded by our chapter included the Initiate awards, given to the initiates for each semester with the most participation in our activities, Most Valuable Member award, given to the member whose contribution to the society went above and beyond the call of service, Unsung Hero award, given to the member whose great impact to the society did not go unnoticed, and the James W. Bayne External Service award, given to the member who demonstrated the greatest devotion to service to the community.

***3. Projects***

*a. Fluids and Materials*

This year, the fluids team took a materials science-spin, demonstrating the properties of Nitinol, a nickel and titanium alloy that remembers its shape. The material's behavior was demonstrated with Nitinol engines, which were driven by the temperature differential between hot- and cold-water reservoirs.

*b. Siege Weapons*

This year we added to our siege weapon arsenal by building a ballista. The ballista launched a broomstick handle about 15 feet, and we hope to build even larger medieval weapons in the future.

*c. Design Project: Penny Crusher*

The design project team took on a challenge this year with building a penny crusher. By turning a crank, a gear train would transmit the motion to a pair of rollers that would slowly pass a penny through, flattening it. Unfortunately, due to difficulties with components breaking days before Engineering Open House, the penny crusher was not fully functioning, but we were still able to explain the mechanics of the device as well as the lessons learned from the challenges with this particular project.

*d. MRDC Robotics*

The robotics team refurbished an old robot to compete in the Midwestern Robotic Design Competition. The team was able to enter the robot in the competition for the first time in a few years, and while the robot did not win the competition, we consider this to be a huge success that will set up the team to do even better next year.

## 4. *Social Events*

### a. *Happy Hours*

As per tradition, we have happy hours biweekly on Fridays at Murphy's, a local pub. Members and initiates are treated to Irish Nachos courtesy of our chapter!

### b. *Study Hours*

This year we started hosting study hours in conference rooms with a variety of food provided. The most popular of these involved cooking ramen with a variety of toppings for members and initiates to enjoy while working on homework. Other study hours had themes such as throwback-to-childhood snacks. Members enjoy having a change of scenery, along with some free food, to go with their studying.

### c. *Initiate-Exec Board Dinner*

We continued the initiate-exec board dinner, this year at Joe's Brewery, as a way for initiates to get to know members of the exec board. As in the past, there was good turnout for this event, and this will likely be continued for years to come.

### d. *Bar Crawls*

Every semester, we participate in two bar crawls, one with the other departmental societies, and one on our own. This is an opportunity for members to bond outside of classwork and celebrate accomplishments, as these are usually held near the end of the semester.

*e. Miscellaneous*

i. Apple Picking

In September, we took a trip to Curtis Apple Orchard to feast on fall food and go apple picking. This was a great opportunity for our members to get away from campus and enjoy the fall weather in each other's company.

ii. Pig Roast

Since this was a very popular event last year, we had a full pig roast in the fall, and a smaller-scale ham and chicken roast in the spring. We spent the day outside and in the kitchen cooking, the hard work paying off with a wonderful dinner in the evening.

***5. Networking and Professional Development***

*a. General Meetings*

We held general meetings every other week throughout the Fall and Spring semesters. Many companies came to speak with us during these general meetings including

- Exelon
- Shell
- 3M
- Kimberly-Clark
- Caterpillar
- Sandia National Laboratories
- SpaceX
- Thyssenkrupp
- McDermott (Chicago Bridge & Iron)
- Cummins
- John Crane
- Whirlpool

These meetings serve to provide our membership with an opportunity to speak to recruiters from these companies and this has on many occasions lead to internship and career opportunities for members. Occasionally, our own alumni will return to speak to us as representatives from the companies they work for.

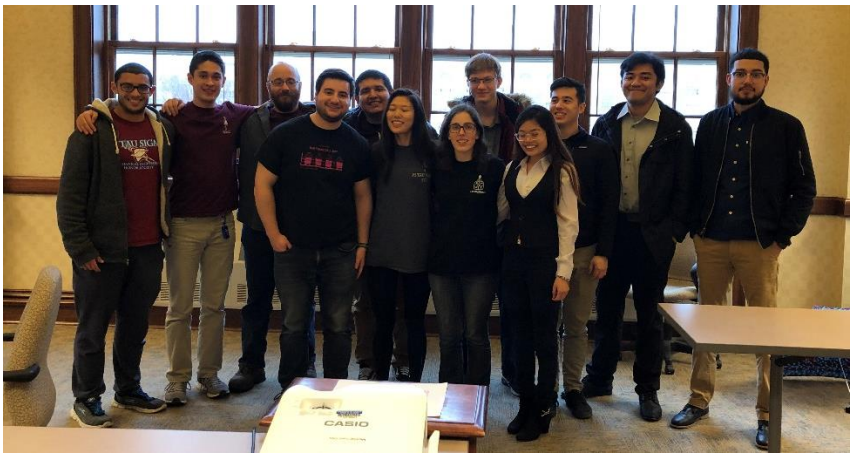
*b. Workshops*

New this year, we hosted a variety of workshops for our members to attend. These included workshops from the Illinois Leadership Center about stress management and teamwork, as well as a workshop from Engineering Career Services about getting the most out of LinkedIn.

***6. Convention Attendance and Chapter Collaboration***

This year, our executive board was able to attend convention at Colorado State! We enjoyed the opportunity to explore Fort Collins, and we had a great time networking with other PTS chapters and learning about other chapters' practices.

After meeting representatives from many of our neighboring PTS chapters, we invited other Midwest chapters to visit UIUC for an all-day event at the end of March. UIC Alpha Sigma sent eight members. The day included lunch and discussion, a Rube Goldberg design challenge, a tour of John Deere facilities at Research Park, and a grill out with burgers, brats, and s'mores. We hope to continue collaborating with our neighboring chapters in the future!




## *7. Society Organization*

Our society is governed by an executive board comprised of a president, external vice president, internal vice president, vice president of membership, treasurer, secretary, social chair, and service chair. This executive board has weekly meetings to ensure that all events run smoothly. Additionally, there are four project heads who oversee the building and exhibition of all projects, a publicity chair who assists the secretary in publicizing events, and a grill master who helps the service chair run the charity BBQ.

The president oversees all society operations. The external vice president is in charge of securing corporate representatives to speak to membership. The internal vice president ensures that the needs of project heads are seen to. The VP membership develops programming beneficial to our membership. The secretary sends out weekly emails and keeps track of attendance, and the treasurer manages the finances of the organization. The social chair plans social events for the organization, and the service chair organizes the biannual charity BBQ and all outreach activities.

For other questions, please visit our website, www.pitausigma.mechse.illinois.edu, or email ptsillinoisalpha@gmail.com.