**Pi Tau Sigma Annual Chapter Report**
**2019 - 2020**
**Illinois Alpha Chapter**

# I. Initiations

PTS Illinois Alpha invited candidates who had obtained a minimum of 60 credit hours and 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.

## A. Initiation Requirements

Illinois Alpha's initiation requirements are such that an 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.

## B. Initiation Ceremony

Attendance of the initiation ceremony is required and is typically held on the last day of classes each semester. Eight new members were inducted Fall of 2019 on December 11th. Seven new members were inducted at our ceremony and one member was inducted during a makeup ceremony.

Fall 2019 Initiation Ceremony (Left) and Makeup Initiation Ceremony (Right)

Due to Covid-19 resulting in the suspension of in-person activities on campus, the spring 2020 initiation ceremony was postponed and will occur within the first two weeks of the fall 2020 semester. Thirteen initiates are expected to be inducted. 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 recites 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. The initiates then sign the Pi Tau Sigma roll book, are taught the

secret handshake, and presented with a pin, t-shirt, and key. Initiates are then treated to an Olive Garden dinner.

2019-2020 Executive Board (Left) and Faculty Advisor, Surya Pratap Vanka (Right)

## II. Chapter Activities

### A. Service

#### 1. Booker T. Washington 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-2nd graders and the other for 3rd-5th graders. The structure of the club this year consisted 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 the 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.

Activity Demonstration at BTW Engineering Club

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.

2. **Charity BBQ**
   Once per semester, our chapter holds a two week long fundraising 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, and cheeseburgers in addition to chips and drinks to passerbys. Initiates and members grill, advertise the event, collect money, and serve customers. In the fall of 2019, we raised approximately $400 to donate to United Way of Champaign County. The second barbeque was to take place upon returning from spring break, but was unfortunately canceled due to Covid-19.

PTS Members Volunteering at the Charity BBQ

3. **Engineering Open House**
   Each year, our society organizes multiple teams to create projects for exhibition and competition at an annual event at UIUC called Engineering Open House (EOH). This event is the largest science fair in the county and students and families from across Illinois come to visit and learn. EOH gives the talented engineers throughout the college a place to showcase their hard work and technical achievements. The event was set to take place March 27-28 and was cancelled due to COVID-19. Our society had 3 teams ready to showcase projects: a robot to compete in the MRDC (Midwest Robotics Design Competitions) hosted at EOH, a marble run showcase intended to demonstrate statistical mechanics, and a showcase of a floating-arm trebuchet.

**B. Departmental Involvement**

1. **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.

2. **MechSE Forum**
   Every fall semester, we host 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.
3. **Distinguished Alumni Panel**
   Every year, the MechSE department holds an award ceremony, recognizing student acheivements. This year, the department honored three distinguished alumni, who are directors or managers at Boeing, Exelon Nuclear, and Los Alamos National Laboratory. The afternoon before the awards banquet, Pi Tau Sigma hosted a question and answer panel for these three distinguished alumni.

4. **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 graduate student life.

5. **Joint Events with MechSE Societies**
   a) **Corporate General Meetings**
      We have also co-hosted a general meeting with representatives from ExxonMobil with AMSE. ExxonMobil was kind enough to provide attendees with dinner.

   b) **Homecoming Tailgate**
      In the fall, we worked with ASME to host 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 football game.

   c) **Broomball Tournament**
      In the spring semester, we co-host a broomball tournament at our campus ice arena with ASME and SEM (Society of Engineering Mechanics). It is always a competitive and good spirited event where we mix all the society members into two teams. Due to Covid-19, this annual event was unable to take place as it was planned to occur following spring break.

   d) **Paintballing**
      As a relatively new tradition, we participate in a paintball competition against SEM every spring semester at a local paintball range, rain or shine. Once again, this event was cancelled due to the ongoing pandemic, but we hope that next spring our society members and SEM members will join together for this event.

6. **Scholarships and Awards**
   Once again, PTS awarded scholarships to worthy recipients, and many PTS students won departmental scholarships and collegiate awards for their service, academics, and involvement throughout the campus. Scholarships directly awarded by our chapter included the Outstanding Initiate award, given to the initiate 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.

## C. Projects

### 1. Siege Weapons

The Siege Weapons Team sets out each year to create a scaled down version of various medieval siege weapons for showcase at EOH. In the past we have built fixed-arm trebuchet, catapult, and ballista. This year we built a floating-arm trebuchet, which was likely to give us the largest distance of any of the machines we have built to date and by far the smallest form factor. We unfortunately were unable to finish building and test that hypothesis due to Covid-19.

### 2. Design Project

The Design Team creates a project that inspires them, usually chosen by the team leader, and to showcase something exciting and unexpected for the children attending EOH given the tools that are available to us as mechanical engineering students. Inspired by the micro/nanomanufacturing research he was involved in and planned on continuing in graduate school, our Design Team lead, Thomas Butruille, set out to build a marble run that demonstrated the principles of statistical mechanics. Some of the things we planned to observe are differing responses to slight variations in speed, mass, and direction.

### 3. MRDC Robotics

The Robotics Team builds a robot to fit the specifications and challenges as laid out by the MRDC. This year we built a robot that was equipped to pick up and throw balls at a target. There is also an element of signal transmission where we use LEDs to send messages to towers on the arena floor. Unfortunately, we were unable to finish or compete due to Covid-19.

## D. Networking and Professional Development

### 1. General Meetings

We held general meetings every other week throughout the fall semester and early spring semester. Many companies came to speak with us during these general meetings including:

- 3M
- Autodesk
- Brindley Engineering
- Caterpillar
- ExxonMobil
- McDermott
- Vesuvius

These meetings serve to provide our membership with an opportunity to speak to recruiters from these companies and this has on many occasions led 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.

McDermott General Meeting

2. **Developmental Workshops**
   Continuing off the success of last year, we hosted a variety of workshops for our members to attend to develop their professional, technical, and interpersonal skills. These included workshops from Autodesk about generative CAD modeling, the Illinois Leadership Center about conflict management, as well as a workshop from Engineering Career Services about acing interviews.

**E. Social Events**

1. **Happy Hours**
   As per tradition, we have bi-weekly happy hours on Fridays at Murphy's, a local pub. Members and initiates are treated to Irish Nachos courtesy of our chapter!

2. **Study Hours**
   This year, we started hosting study hours in our mechanical engineering facility's conference rooms with a variety of foods provided. The most popular of these involved cooking and serving ramen with a selection of toppings to members and initiates to enjoy while working on homework and projects. 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.

3. **Initiate-Exec Board Dinner**
   Once we have invited students to initiate, we host an initiate-exec board dinner in the beginning of each semester at Joe's Brewery, a local restaurant. The initiate-exec board dinner is a way for initiates to get to know members of the exec board as well as each other. We even have the initiates participate in icebreaker activities in which the winner receives a gift card. As in the past, this is always a fun event with good turnout, and this will likely become tradition for years to come.

4. **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.

5. **Apple Picking**
   In September, we took a trip to Curtis Apple Orchard to pick apples and pumpkins, as well as eat lunch at the historic Flying Monkey Cafe. This is always a great opportunity for our members to get away from campus and enjoy the fall weather in each other's company.

Group Photo at Curtis Apple Orchard

6. **Pig Roast**
   The pig roast has become an annual tradition in our organization and we even invite alumni to return to campus for this special event. The pig roast is an all day event towards the end of the spring semester that consists of building our own cinder block oven and cooking roasted hams and chickens. We also prepare many sides like mashed potatoes, mac and cheese, and coleslaw. This event attracts many members and initiates who all help with cooking, cleaning, and of course eating after a long day of work. Unfortunately, this year's pig roast was set to take place on April 25th and we are saddened that the current circumstances did not allow it to take place. But this makes us even more excited for the next pig roast and many graduating members are vowing to return for this event!

Spring 2019 Pig Roast

**F. Convention Attendance**

This year, our entire executive board was able to attend the convention at Rochester Institute of Technology! We enjoyed the opportunity to explore the Rochester area and had a great time listening to the keynote speakers, networking with other PTS chapters, and learning about other chapters practices.

Illinois Alpha Executive Board at RIT

**G. Society Organization**

Our society is governed by an executive board composed of a president, external vice president, internal vice president, vice president of membership, treasurer, secretary, social chair, and service chair. This executive board meets weekly to plan and detail upcoming events and ensure everything runs 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 the project heads are met. The vice president of membership develops programming beneficial to our membership. The secretary sends out weekly emails and keeps track of attendance. The treasurer manages the finances of the organization. The social chair plans social events for the organization. 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.