# PI TAU SIGMA ANNUAL CHAPTER REPORT
# 2010-2011
# Illinois Alpha

## A. Initiations

### Selection and Recruitment Process

The Illinois Alpha chapter requires its initiates to have completed 60 or more credit hours for a bachelor's degree in Mechanical Engineering, while maintaining a GPA of 3.50 or higher on a 4.00 scale. At the beginning of each semester, the Mechanical Engineering department sends the candidates that meet the above requirements an invitation letter by email written by the current president of the society. The invitation explains what Pi Tau Sigma is and some of the events that our chapter has participated in. Additionally it invites the candidates to an introductory meeting where the initiation process is explained to them further. Recently our chapter has begun initiating graduate students in the department of Mechanical Engineering based on recommendations by current members.

### Initiation Requirements

Our chapter wants our new initiates to get used to participating in the society; therefore, we require a high level of involvement for initiation. Therefore a points system was created, that requires initiates to receive a certain number of points before they can initiate. Initiates can earn points by attending general meetings, participating in social events, volunteering at service events, and by being involved in a project. A certain minimum of points is required for each category, but there is a fair amount of flexibility for the total point requirement. Graduate students wishing to initiate are subject to all of these requirements, except their research takes the place of the project involvement requirement. Additionally, a lifetime membership fee of $50 is required of initiates.

### Initiation Ceremony

Our initiation occurs typically two weeks before the end of each semester. This past year, initiations were held on December 2, 2010 and April 28, 2011 where we initiated 17 and 20 new members respectively. We consider initiation to be a formal affair, and all in attendance are required to wear business formal. Initiates are led into a dimly lit room and are told to stand at the front before the current members. Executive board leaders read the initiates the standards and ethics that Pi Tau Sigma works to uphold. Initiates are individually asked if they will uphold these standards when members of Pi Tau Sigma. Initiates are also introduced to the Pi Tau Sigma emblem and coat of arms. Finally initiate names are read, and they receive a certificate and are pinned with the Pi Tau Sigma pin. Initiates are also taught the secret handshake and given a t-shirt. After the ceremony, a catered reception is held for the new and old members.

## B. Chapter Activities

### Fundraising

Each year our chapter raises money for Relay for Life for the American Cancer Society which supports cancer research. Our most popular fundraising events are barbeques that we host on the engineering quad. At these barbeques, which are open to the general public, we sell brats, hot dogs, hamburgers, chips and drinks for a low cost. These barbeques are staffed by our initiates and members. This year we doubled the number of barbeques we had to eight, which

significantly increased our contribution to cancer research. Another fundraising event that we hosted was a partnership with Noodles, a restaurant on campus. Noodles agreed to donate 10% of their profits for one night to our cause. This required us to advertise on campus, to bring more people into the restaurant. Also, this year we really pushed individual efforts for raising money for our Relay for Life team. The combined fundraising efforts raised a total of $3, 256.55 this year, which is our most successful contribution to date. The Relay for Life event was held at the University of Illinois on April 16th, 2011 where a group of our members and initiates stayed up all night and walked around a track with thousands of other students in support of ending the terrible disease.

**Service**

This year we tried to incorporate some new service events. We hosted two food drives, one in the fall and one in the spring, where our members could bring in non-perishable food to donate to a local food bank. In our community, the need for aid for the less fortunate is especially apparent so we felt it our responsibility to help. For one of the food drives we were able to raise about 126 pounds of food which can be used to make about 97 meals for those in need. Our other food drive was also very successful. Additionally, in the fall semester, we hosted a blood drive. We arranged for the Community Blood Services to park their blood mobile outside of our mechanical engineering building. We also advertised for the event and were able to recruit many mechanical engineers, as well as our own members and initiates, to donate blood. As members of Pi Tau Sigma, we also felt it very important to volunteer within the community. In the fall semester we volunteered at a local grade-school's LEGO Mindstorms Robotics Competition. Several of our members volunteered their time at the day event as referees, time and score keepers, and registration assistants. Then, in the spring semester, some of our members volunteered at the 4-H Illinois State Robotics Competition as judges. We wanted to support both of these competitions, because they are sparking an interest in robotics for future engineers. The members who volunteered found working with the students to be very rewarding.

**Department Activities**

One of the main focuses of Pi Tau Sigma is to encourage departmental activities. This year our chapter hosted two events specifically for our mechanical engineering department and participated in various others. The first event was the 3rd Annual MechSE Forum, which was an event where department coordinators and facility managers engage in discussion with students about the curriculum and facilities. This allows students to address their concerns with the current curriculum and suggest changes to faculty that can make a difference. Overall, this event has been very well received and we plan on continuing it in the future. The second event was a MechSE Volleyball Tournament that was hosted in the spring. Mechanical engineering students and professors were encouraged to form volleyball teams to compete for a trophy that is displayed in our mechanical engineering building. This is a great opportunity for students and faculty to interact in an informal setting. Our president and vice president attended the MechSE Student Society Luncheon each month with the directors of undergraduate programs for mechanical engineering and other engineering student society leaders such as ASME. At these luncheons we discuss new ideas for bettering the mechanical engineering program and how to provide more opportunities for networking between students and companies. Some of our members also volunteered to be tour guides for potential University of Illinois students who are

interested in the program. They give tours around the mechanical engineering student labs and answer questions in a panel discussion about what it is like to be a college engineering student.

**Events with Other Engineering Societies**

In our mechanical engineering department, we have struck up a friendly rivalry with the ASME student chapter at our school. In the fall semester we challenged them to a paintball match at a nearby paintball field with about 12 members participating on each team. Our chapter lost the paintball match but was redeemed when we played a Pi Tau Sigma vs. ASME softball game in the spring. With nine of our members and eleven of theirs, we defeated them in two games. While the competition aspect is fun, these events provide a good way of meeting other students in the department and promoting collaboration between the two societies. Our chapter also participated in some engineering-campus wide competitions sponsored by Engineering Council. E-week is a national celebration of engineering around universities, and many competitions were set up between different engineering societies. These competitions included a softball toss, family feud, food relay races and many more. It was great to interact with other engineering disciplines in a fun atmosphere. Engineering Council also sponsored a broomball tournament for engineering societies. Broomball is a game similar to hockey but played wearing gym shoes out on the ice. The goal is to shoot a ball into a net using brooms. Over 10 engineering societies participated in the tournament with 6-10 members per team. Our team did not win, but we had many initiates come out to the event so it was a great chance for them to get to know each other. Our chapters president also participated in Engineering Council's presidents' retreat where presidents for the different societies in engineering council got together to discuss leadership techniques and strategies that they employ. About 25 presidents from different societies were in attendance. This was a great event because our president was able to bring a lot of good ideas back to our chapter. We also had a joint event with our university's chapter of Tau Beta Pi an engineering honors society. Our executive boards met with two representatives from Caterpillar who were engineering of Illinois alumni to eat dinner at a local restaurant. This was a great opportunity to network with a company and learn about being an engineer at Caterpillar

**Projects**

Our chapter is very dedicated to supporting the technical skills and project management skills of our members. We believe the best way to accomplish this is to offer different projects for our members to work on. One of our most popular projects is building a robot to compete in the Jerry Sanders Robot Competition. This competition, which takes place on our campus annually, requires teams to build a robot from the ground up which can perform specific tasks in an obstacle course. This year our robot placed first place in the consolation bracket. Another project that our chapter supported flexed our members' creativity. The project consisted of doing stress analysis on our department's broken grill and to brainstorm new ideas to improve cooking of the grill. This project succeeded in building a prototype that was successful at preventing smoke from coming up into the face of the griller when they open the lid. This prototype was displayed at Engineering Open House, which is a huge event open to the general public that our engineering college puts on each year. Our chapter also had too other Engineering Open House Projects. One was a hexapod exhibit, where six-legged robots controlled by playstation controllers maneuver an obstacle course. Our members were responsible for designing and constructing the obstacle course which included a four-bar linkage, and also programming and repairing the robots. This event is always very popular, especially

among the younger children that attend the open house. The other exhibit was a sandcasting exhibit, where members assisted participants in packing sand molds around a car pattern. Then members poured molten aluminum in the molds as onlookers watched to learn the basics of sandcasting. Afterwards, the gate systems was sawed off from the cars and the participants were allowed to take the cars that they made home. This exhibit is always well received, and is one of the most hands-on events at the open house. Another project we worked on this school year was the construction of a pair of boards for a bean bag game. Members and initiates were successful in working together to build the boards out of wood. Another member dedicated her sewing skills to make the bean bags. Now we have this set to play at BBQs and tailgates.

**Facility Tours**

This year, there was an increase in effort to bring members and initiates to different engineering factories. We feel that facility tours are an invaluable learning experience for engineers as a supplement to our classroom education. Last fall we brought five members to the Nucor Steel Mill in Crawfordsville, IN. At the steel mill we were able to see the complete process of how carbon is added to the iron and then continuously cast to form steel slabs, which are then rolled to a desired thickness. Then during the spring semester we arranged for members to tour a Caterpillar Plant in Decatur, IL where they make motor-graders and large mining trucks. Five members were able to walk around the facility and learn from a tour guide how a manual assembly plant works and specifically what a mechanical engineer's role is in the process. These tours were found very interesting to the people who attended them, and we hope to expand and visit more plants, bringing more members for the future.

**Social Events**

Our chapter believes that an important part of our society is the network that we build between our members. To support this network we host several social events for our members to interact. In the fall we hosted two tailgates before home football games were members could eat and play yard games with each other. We also went to a college hockey game in the fall to socialize and support our school's team. After one of our chapter meetings we went bowling in our school's union. This was a really fun event and we had large group participation. As we are college students, some of our most popular events are happy hours and barcrawls where we consistently have over thirty members in attendance. We have one barcrawl each semester and happy hours every other Friday during the semesters. At these events, members and initiates get the chance to get to know each other and build friendships. This past spring we also had our first Pi Tau Sigma golf outing where we had eight members play a round of golf. This event was well received and we plan on continuing the event in the future, possibly incorporating some alumni as well.

**General Meetings**

We have chapter meetings every other week during the semester. Initiates were only allowed to miss one meeting during the semester they were initiating, unless they have a legitimate conflict, like class. Our society tries to incorporate various speakers at our general meetings. We invite corporations, professors, or societies to come and speak. This not only keeps our members up to date on current research and technology in our field, but it also helps us build connections for possible future opportunities. This year we had companies such as Caterpillar and Northrup Grumman come in to speak. Caterpillar is a very popular employer for our department at our

school, and many of our executive board and other members have had internships with them. A recent Pi Tau Sigma alumnus who got his bachelors and masters at the University of Illinois came back from Los Angeles, CA to give a presentation about Northrup Grumman. This was a great opportunity for our society, because having recently graduated from our school he was able to relate well to our members. In the fall semester, our chapter hosted a joint meeting with AIAA and aerospace organization on campus, and we invited Professor Greendyke from the United States Air Force Academy to give a presentation. He talked about cutting edge research that the Academy was doing for the Air Force. Additionally, he brought along one of his students to discuss what life was like in the Air Force and what opportunities are available. Both societies really enjoyed the presentation. Another speaker that we invited to our general meeting was Professor Joseph White, who was previously the president of our university and who also worked at Cummins as an executive officer for several years. He gave a very interesting presentation about how business men and engineers interact within a company. It was really thought-provoking to get a more business orientated person's point of view on the engineering process. Other things that we do internally for our members is we have some of our graduate student members discuss graduate school, and answer questions that the undergraduate students might have. This year, our chapter was a unique mix of graduate students and undergraduate students which we believe works well in the interest of the society. From these interactions and discussions, many of our members continue on into graduate school either at our university or elsewhere.

**National Convention**

This year, since the convention was so close, we brought ten people to the national convention at the University of Illinois Chicago. Everyone that went had a really good time and we learned a lot about what is required to host a convention. Our chapter plans on hosting the centennial convention in 2015, so we were able to learn a lot about how conventions are run. Additionally, to start preparation for hosting, we started a national convention committee and one of the members who attend this past year's convention is the committee chair.

**Scholarships**

Our society believes that scholarships are a great way to reward members who have put a lot of time and effort into our society. Each year at the spring initiation ceremony, we reward five different scholarships. The first is the James W. Bayne Service Award which goes to the member who contributes the most to our service and fundraising efforts. Another scholarship that we award is the Most Valuable Member, which goes to a member who is all around active in all areas of our society usually in planning events and working on and leading project teams. The Unsung Hero Award goes to a member who is very involved but does not seek recognition for his or her efforts. Finally we have two initiate awards given to the most active initiates each semester. During a general meeting the executive board takes nominations for each award from the members and initiates, and then later votes on who they think is the most deserving of the awards. Therefore the executive board is exempt from winning these awards. In addition to our internal scholarships, there also are two Pi Tau Sigma scholarships awarded through our mechanical engineering department. These awards are for the Most Outstanding Pi Tau Sigma Sophomore and the Most Outstanding Pi Tau Sigma Senior. Our department advisor has the final say on the recipients of these scholarships which are awarded at an annual banquet in the spring.

**Society Organization**

As our chapter has grown in active members over the past few years, our executive board has had to adjust for the growth to be able to plan all the events and run the projects. Our elections occur each spring the week before our initiation ceremony. Any member or initiate who has been meeting the set requirements is allowed to run for office. Typically the candidates give a short speech why they should be elected and then after they leave the room, the society discusses who would be a good fit and then a vote occurs. To start, the executive board is run by the President who runs weekly meetings for the Vice President, the Treasurer, the Recording Secretary, the Corresponding Secretary, the Webmaster and the Historian. The president also has meetings about every other week with our faculty adviser to discuss different ideas and problems that come up in the chapter. Our Treasurer creates a budget for the year and handles reimbursements for members. The Recording Secretary is in charge of keeping track of attendance at general meetings and other events, up-keeping our email account, and sending out weekly emails. The Corresponding Secretary is our Engineering Council representative, and is also responsible for finding speakers for general meetings. Our Webmaster updates our website and creates any event sign-ups that we need, and our Historian documents events by taking pictures and stays in contact with alumni by sending out bi-annual newsletters. Our Vice-President then is in charge of the committee chairs and runs a meeting with them every week. This year we had a Service Chair, a Fundraising Chair, a Project Chair and a Social Chair that were in charge of running committees that plan and coordinate events and also work on our projects. Also, we have project leaders who lead the different projects such as hexapods, sandcasting, the design project and Jerry Sander's competition who all report to the Project Chair.

**Websites**

For more information about our chapter, please visit our website.
http://pitausigma.mechse.illinois.edu/index.php

For additional information on some of the events we participated in, please see the following websites.
Jerry Sanders Competition: http://dc.ec.illinois.edu/
University of Illinois Engineering Open House: http://eoh.cen.uiuc.edu/
4H Robotics Competition:
http://web.extension.illinois.edu/state4h/events/4hroboticschallenge.cfm
American Cancer Society Relay for Life: http://www.relayforlife.org/relay/

**Pictures**

Members as of Fall 2010 Initiation

Spring 2009 Initiates after our initiation dinner

Fall Barbeque Fundraiser for Relay for Life

Spring Barbeque Fundraiser for Relay for Life

Bowling outing for members and initiates

Pi Tau Sigma participation in E-week marshmallow toss

Hexapod exhibit at EOH

Packing molds at the sandcasting demonstration at EOH

Pi Tau Sigma members pouring molten aluminum at sandcasting exhibit for EOH

Design Project exhibit at EOH showing prototype of grill design

Jerry Sanders Robot Competition course

Jerry Sanders Robot team and robot

Northrup Grumman speaker at general meeting

Executive board at national convention in Chicago

Discussion Panel for MechSE Forum

3rd Annual MechSE Volleyball Tournament

Members hanging out at a home football tailgate

Nucor Steel Mill tour in Crawfordsville, IN