**PI TAU SIGMA ANNUAL CHAPTER REPORT**
**2016 – 2017**
**California Pi Omega**

## A. INITIATIONS

### I. Selection Process

The California Pi Omega chapter extends eligibility towards the top third of the senior class and the top fourth of the junior class in the Mechanical Engineering Department, as determined by grade point average (GPA) and number of completed credits at the university. The official requirement for junior standing is at least 60 credits and for senior standing it is 90 credits. The list of eligible students is delivered by the College of Engineering between the fourth and fifth week of each semester and the qualified candidates are notified immediately of their eligibility by the External Vice President. A candidate meeting is held to introduce these candidates to Pi Tau Sigma and inform them of the benefits of joining the society. In the fall of 2016 there were 13 candidates who crossed and became members; in the spring of 2017 there were 8.

### II. Pledge Requirements

As in the past, the pledge process consists of several required meetings, two outreach events, two to three social activities, the pledge project, various required submissions, and dues. These requirements are outlined at the candidate meeting and included in the candidate packet as shown below (in the candidate packet from Fall, 2016).

## Pledge Requirements

The Pi Tau Sigma pledging process has been carefully formulated to develop not only your engineering skills, but also to make you a responsible member of the community and an active participant in our group's undertakings. Therefore, before you can be initiated as an active member, you must complete **62 points** of requirements. The point values of the following activities are indicated by the bracketed numbers.

**Required Events** – *Attend **ALL** events*:
- ❑ 09/25 Pledge Barbeque [5]
- ❑ 10/13 General Meeting 1 [5]
- ❑ 10/27 General Meeting 2 [5]
- ❑ 11/17 General Meeting 3 [5]
- ❑ 12/10 Initiation [5]
- ❑ N/A Big/Little Sibling Event [1]

**Outreach** – *Accumulate **10** points*:
- ❑ 10/08 SWE Science Saturdays [10]
- ❑ 10/15 Marina Clean Up [10]
- ❑ 10/22 Berkeley Project [10]
- ❑ 11/05 SWE Science Saturday (possible) [10]

**Social Activities** – *Accumulate **15** points*:
Please **RSVP to all events on PTS website** *before* attending.
Dates are subject to change, website is the official source.
- ❑ 10/08 Campus-wide Scavenger Hunt [5]
- ❑ 10/13 Menchies after GM1 [5]
- ❑ 11/11 Top Dog and CREAM [5]
- ❑ 11/18 Movie Night [5]
- ❑ 12/08 Study Night [5]

**Pledge Project** – *7 points*:
- ❑ Submission of concept sketches at GM1 [1]
- ❑ CAD model or low fidelity prototype at GM2 [1]
- ❑ Evidence of testing and/or final prototype at GM3 [1]
- ❑ Clearing project challenge on initiation day [4]

**Student Services** (repeatable for points) – *2 points*:
- ❑ Perform 2 hours of tutoring services on behalf of PTS [2]

**Required Submissions** – *2 points*:
- ❑ Resume [1]
  - Resumes can be uploaded to your account on the PTS website
  - Make sure all resumes are in a PDF format
  - Resumes must be uploaded by GM3
- ❑ Three Electronic Copies of Exams [1]
  - Mechanical Engineering curriculum; Preferably with solutions
  - Email to pts.studentrelations@gmail.com

**Dues** – *requirement to become a member (pay to the Treasurer)*:
- $95 total for lifetime membership, nonrefundable, make checks payable to "PTS-ASUC"
- 1st portion ($45) due by GM1
- 2nd portion ($50) due by GM2

## III. Pledge Projects

As mentioned in the previous section, the pledges are required to work on a project throughout the course of the semester. These projects are always of an engineering nature and allow the pledges to develop and showcase their mechanical engineering skill sets. On the day of the pledge barbecue, pledges are separated into teams of four and are presented with an overview of the project, including rules and requirements. They then have until initiation to design, build, and test their engineering devices; their progress is monitored with regular check-ins and presentations to the Pledge Projects Committee or the society as a whole. In the fall the project was to build a paper/bottle rocket which could launch and aim at a specified target. In the spring the project was to build a Rube Goldberg machine inside a cardboard box that would transport a ping pong ball from the bottom corner of the box to the opposite top corner of the box.

## IV. Initiation Day Ceremony Rituals, and Celebration

Pledge Project Competition

The pledge project competition is hosted on the day of initiation early in the morning. The members of the Pledge Project Committee serve as the official judges and award points based on aesthetics, creativity, craftsmanship, performance, and each group's presentation of their project. The competition runs for about an hour.

MATLAB Scavenger Hunt

One of Pi Omega's unique characteristics is the scavenger hunt portion of the initiation, which has been honed and perfected since its introduction eight years ago. The scavenger hunt consists of seven stations inside the mechanical engineering building which the pledges must find by using clues provided to them. At each station they are presented with a computer running Matlab and must answer questions about Pi Tau Sigma, UC Berkeley, and basic mechanical engineering concepts. Upon giving the correct answer, they are given a clue for the next station and are ultimately given a final clue which leads them to the ceremony room for the official initiation ritual. The scavenger hunt portion of the initiation usually lasts two hours depending on how well the pledges remember engineering and physics equations.

Ceremony, Elections, and Banquet

Pledges are inducted into the society according to the official rituals of the national chapter.

Once all have crossed, they are taught the societal handshake, then shake hands with each officer and sign the Pi Omega roll book. After a ten minute break officer elections begin and generally last one hour. In the fall of 2016 the society had 32 officers and in the spring of 2017 it had 37. Once the officer corps for the next semester is elected, photos are taken of the pledge class and the current officers.

After adjourning and recuperating for several hours, all officers and new members meet for the end of semester banquet at a local restaurant in the city of Berkeley. Afterwards all graduating

members are asked to stand and reveal their future plans, after which they are applauded and are bid many a tearful goodbye. The fall 2016 initiation was held on December 3rd and in the spring of 2017 it was held on April 29th.

Initiation Fall 2016

## B. CHAPTER ACTIVITIES

### I. Industrial Relations

a. Mechanical Engineering Career Fair

Being an honor society chapter, one of our main goals is to improve access to career opportunities for Berkeley engineering students. Each fall semester, our officer core hosts the annual UC Berkeley Mechanical Engineering Career Fair; the event is generally held during the second week of September. Companies set up tables along our “breezeway”, and students will line up to talk with companies that they choose. Recruiting is done for both internships as well as full-time positions. The event generally signifies the kick-off of the fall recruiting season; the official UC Berkeley, 3-day campus career fair is not until the week afterwards. Thus, this is the first opportunity for many students and corporate representatives to interface. Accordingly, the

event is treated very seriously – automotive companies will bring out their latest models of cars to show off, and the estimated student attendance rate is approaching 1,000.

This past Fall 2016, a total of 6 companies attended – Boeing, General Motors, Ford, Chevron, Intuitive Surgical, and Alloy Product Development. The planning for the Fall 2017 career fair has already been underway for weeks, with an expected company attendance list in the 15-25 range.

b. Information Sessions

These events, hosted mainly in the fall semester, are opportunities for companies to recruit on campus. Representatives come speak to students for roughly an hour about the type of work their companies engage in, as well as employee benefits. Students then have the opportunity to ask questions, then line up to speak to the recruiters personally and give their resumes. This past year the chapter hosted info sessions for Chevron, General Motors, iDTech, and SkyRyse.

c. Boeing Trip

This Spring 2017, Boeing has sponsored it's annual "Boeing Day", in which the company sponsors 4 PTS members to travel to its Everett, Washington facility for its executive tour. The PTS members are selected by an application process, with PTS facilitating the process. The final chosen members to go on the Boeing Day trip are selected by Boeing, and are given a stipend for transportation and hotel costs. A number of other UC Berkeley engineering student groups also organizes a similar funded trip, and the aggregate of chosen students travel to the facility together.

The event was very well-received, with both PTS and Boeing happy with the results and looking forward to a continued partnership as well as future events. The tour members were able to speak with top Boeing executives, and were also able to explore the Seattle area in addition to the Boeing facility. A picture of the PTS members that went on the trip is shown below.

2017 PTS Boeing Day Attendees

## II. ME Department Town Hall Meeting

The chapter once again organized and hosted this semesterly forum for students to express their concerns to the department and for the department to discuss its future plans with the students. A survey was first sent to all students in the department to assess the different issues that are important to address. About 100 students respond to the survey each semester. The turnout of the town hall was on the order of 30-40 students and 10-15 faculty / staff members. Typically the Chair of the Department and the Vice-Chair of Instruction attend, as well as involved members of the department. Town Hall has spurred a number of important changes in the department, including changes in course requirements, reconstruction of core classes, the addition of more study spaces, expanding the list of classes that fulfill the quantitative science requirement, among many other improvements.

## III. Outreach Programs and Community Service

In accordance with their requirements, all pledges must participate in two community service events the semester they pledge. These are detailed below.

a. Berkeley Project

This is UC Berkeley's semesterly volunteer work day. Hundreds of student groups show up to volunteer at sites around the campus and around the city of Berkeley. Activities include cleaning up gardens, cleaning up the Berkeley Strawberry Creek, and maintaining the Berkeley Marina. The Pi Omega chapter fielded pledges and members for both the Fall 2016 and Spring 2017 Cal Days.

b. SWE Science Saturday

The UC Berkeley chapter of SWE (Society of Women Engineers) hosts Saturday events for elementary and junior high age children. The events aim to "to engage kids in the learning process, show how engineering applies to their everyday lives, better inform them about what engineers do, and give them something productive and enjoyable to do on a Saturday." Each semester, the Pi Omega chapter sends pledges and members to help out with the event.

c. Mini-University

Mini-University (MiniU) is another program put on by the UC Berkeley SWE chapter, but the target is for high school students. Students are invited to the campus to experience a day in the life of a UC Berkeley engineering student. Pi Omega pledges and members volunteer to take a student along with them for the day, and to show them what an engineering student really does throughout a regular school day.

d. Berkeley Marina Cleanup

Every month, volunteers are invited to help keep the Berkeley Marina (which is Berkeley's entrance to the San Francisco Bay). Pi Omega typically fields 3-10 pledges and members to help in the effort each semester.

e. Challah for Hunger

The Berkeley Hillel is the campus' center for Jewish life. The Challah for Hunger is an event that invites outside members every Thursday to come in and help make traditional challah bread. The bread is then sold to help support the Hillel's operational funds. Pi Omega typically fields 5-15 pledges and members, up to 2 times each semester.

f. Cal Day Cleanup

Cal Day is a Student Relations activity which will be described in detail later in this document, as a Student Relations event. After the event, Pi Omega members will help in the effort to clean up tables, banners and other items used for the day's events.

**IV. Student Relations**

The Student Relations Committee is responsible for providing help and opportunities for all students in the Mechanical Engineering Department.

a. Tutoring/Officer Hours

The primary function of the Student Relations Committee is to provide academic support to non-PTS members in the form of homework help and exam tutoring. Tutoring is offered every day for two hours and students can come get help on any core mechanical engineering course, and some electives depending on the officer tutoring.

b. Freshman Mentoring Program

One of the student benefits offered by the committee is a program to mentor incoming freshman and junior transfers to help them ease into Berkeley engineering. Students who sign up to receive a mentor are paired with chapter officers and members, who maintain email contact throughout the semester and even meet in person to discuss and give advice on academics, extra-curriculars, class registration, student life, and any other topic the mentee would like to discuss.

c. Review Sessions

The Student Relations Committee is also responsible for holding review sessions before exams in the core mechanical engineering courses. The committee contacts professors of these courses to gain approval to hold a review session, get the exam dates, and learn what material will be covered on the exam. An officer that knows the course material well then prepares notes and practice problems for the review session. The committee contacts the professor to advertise the review session to the students in that class. The review sessions are always very full of students. The committee typically conducts review sessions for solid mechanics, fluid mechanics, thermodynamics, controls, behavior of materials, and dynamics.

d. Cal Day

Cal Day is UC Berkeley's annual open house and welcome for admitted students, in an effort to attract students to enroll for the fall. The mechanical engineering student groups showcase their projects and activities on this day. The Pi Omega chapter helps with the Mechanical Engineering administrative staff, and also provides answers for general questions that admitted students and their families may have.

Cal Day 2017, Pi Omega Table

e. Undergraduate Advising Day

Every semester the department hosts an undergraduate advising day where professors examine students' planned schedules and give them their class registration codes. As is customary, chapter officers and members host a peer advising table on these days to give a student opinion on classes, extra-curriculars, etc. Underclassmen find it especially helpful to have experienced students available to give them advice.

**V. Social Activities**

In order to strengthen the bonds within PTS, all chapter members are invited to attend the social events; most often officers and pledges will attend two or three. The largest social event is the pledge barbeque held every semester. The barbeque is always held the weekend after the candidate meeting and all pledges are required to attend. The barbeque is typically held at Willard Park in Berkeley. The officers bring lunch, snacks, drinks, and games for everyone to enjoy. This is the first chance the pledges and officer really have to interact and get to know each other. The barbeque is two hours long and the first hour is spent cooking and eating, while the second hour is spent playing soccer or Frisbee and chatting.

There are also many other smaller social events held throughout the semester. This includes a scavenger hunt, frozen yogurt night, Big C hike, movie night, boba hangout, capture the flag, late night dining, study night, and trip to the Berkeley Botanical Garden.

## VI. Chapter Meetings

There are three general meetings (GMs) each semester; officer and pledge attendance is required. The first and third meetings focus on the professionalism of the society, so usually a professor will speak about his or her research, path to becoming a professor at Berkeley, or any topic of choice. This gives students a chance to learn about a professor's experience and ask questions, hopefully to help their own future plans. The second meeting is intended to make pledges and officers mingle and get to know each other better. This is the "fun" GM and usually consists of a chapter-wide building project or ice breaker activity. In the fall the task was to create the longest bridge with the tallest tower with given materials. In the spring the task was to create a boat with given materials that had to go farthest when blown by a fan. Each meeting the pledges have a pledge project check-in where they must demonstrate their design concepts and show the fully-dimensioned CAD drawings of their projects while they explain functionality to the officers.

## VII. Officer Retreat

The officer retreat occurs at the beginning of each semester and is an opportunity for the new officers to integrate into the society, thus improving chapter cohesion. It is also a lot of fun and usually consists of a road trip to a state or national park. The fall semester officer retreat was held in Yosemite National Park, where officers went hiking, swimming, played billiards and foosball, and held a barbeque for dinner. The spring semester retreat was held in Lake Tahoe, and officers enjoyed skiing, snowboarding, snowball fighting, sledding, and snowman building, billiards, and board games.

Officer Retreat Spring 2017

## C. OTHER INFORMATION

### I. Information Technology

The Information Technology Committee is responsible for all the chapter's digital media, including the website at http://pts.berkeley.edu. This year the website was completely remade from scratch thanks to the IT committee. The new website has many new features and improvements but the committee is still working to improve the usability of the website. The website includes information about membership and tutoring hours, as well as a test bank of past mechanical engineering exams, if approved by the professor. The website is also used for all members to view upcoming events and for pledges to keep track of their requirements. Officers award pledges points through the website so that the pledges know what they still need to complete.

### II. Plans for the 2017-2018 School Year

At the last officer meeting of each semester the committee chairs discuss what they believe to be the successes and difficulties of their time in office and their recommendations for future officers, as well as plans for the coming semesters. One change the officers would like to implement is an incentive system for officers to get as involved as possible. The chapter hopes to reward those that go above and beyond and dedicates much of their time to improving the chapter. The chapter would also like to hold a new kind of event where all students in the department are invited to join a few professors for a coffee hour or lunch. The officers hope that this will help students feel more comfortable getting to know their professors, give students a chance to ask for advice outside of their assigned advisor, discuss future plans, and learn about different fields within mechanical engineering as well as research opportunities. The chapter would also like to create an alumni network with graduates who would like to keep in contact and possibly offer career advice or positions to current members.