**PI TAU SIGMA ANNUAL CHAPTER REPORT**
**2010 – 2011**
**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 on the first Wednesday after the list is released to introduce these candidates to Pi Tau Sigma and inform them of the benefits of joining the society. In the fall of 2010 there were 30 candidates who crossed and became members; in the spring of 2011 there were 18.

## 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. The terminology was recently changed to 'points' in order to avoid any confusion with the term 'units' which is used by the university to designate relative class workload.

**Required Events** – *Complete **ALL 27** points:*

| | | |
|---|---|---|
| ☐10/5 | Pledge Barbecue | [5] |
| ☐10/20 | General Meeting 1 | [5] |
| ☐by 11/3 | Big/Little Sibling Event | [1] |
| ☐11/3 | General Meeting 2 | [5] |
| ☐by 11/17 | Questionnaire | [1] |
| ☐11/17 | General Meeting 3 | [5] |
| ☐12/4 | Initiation | [5] |

**Outreach** – *Accumulate **10** points:*

| | |
|---|---|
| ☐Berkeley Engineers and Mentors | [5] |
| ☐Young Engineers and Scientists Day | [5] |
| ☐LHS Ingenuity Lab | [5] |
| ☐SWE Saturdays | [5] |

**Social Activities** – *Accumulate **15** points:*

| | | |
|---|---|---|
| ☐10/10 | Tilden Park Picnic | [5] |
| ☐10/12 | Fenton's Social | [5] |
| ☐10/17 | Archery | [10] |
| ☐10/21 | Movie Night | [5] |
| ☐10/29 | Rock Climbing | [10] |
| ☐11/6 | Driving Range | [5] |
| ☐11/14 | Exploratorium | [10] |
| ☐11/20 | Big Game | [5] |

**Required Submissions** – ***4** points:*

☐Resume [1]
☐Three Electronic Copies of Exams [3]

**Pledge Project** – ***10** points:*

☐Exercise your design skills and apply theoretical concepts by building a **Rocket Boat**
☐Film your machine in action: the team with the best machine wins a prize

**Pledge Dues** – ***4** points*

## 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. The past year's pledge projects focused on moving an object from one point to another. In the fall the project was to build a Rocket Boat which could travel across a campus reflecting pool in a straight line. In the spring the project was to build an egg transporting device which could carry an egg across a street, over a curb, and up a sidewalk to a designated area.

## 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 team with the highest scoring project is awarded a prize, usually one of the chapter's coveted "I Matlab Matlab" t-shirts. 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 two 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 two to three hours. In the fall of 2010 the society had 29 officers and in the spring of 2011 it had 38. Once the officer corps for the next semester is elected, photos are taken of the pledge class and the outgoing 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. Several hours of jovial, yet nostalgic socializing are followed by the Pledge Projects Committee giving the results from the morning's competition. The President then names the winner of the "Officer of the Semester" award, which is given to the officer who has demonstrated commitment to the society above and beyond the requirements of their position. 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 2010 initiation was held on December 4 and in the spring of 2011 it was held on April 30.

**Officers and new members at the fall 2010 banquet, held in *Great China*.**

## B. CHAPTER ACTIVITIES

### I. Industrial Relations

#### a. The Industry Seminar

This is the third semester in which the industry seminar has been actively bringing professionals from mechanical engineering-related companies to speak to undergraduate students. However this is the first semester in which the Industrial Relations Committee incorporated professional development, such as resume tips and recruiting strategies for undergraduates.

- **Aptera** – Richard Fabini, *Powertrain Engineer*
- **Applied Materials** – Darshini Desai, *Global Product Manager*
- **Bechtel** – Jon Berkoe, *Senior Principal Engineer*
- **British Petroleum** – Steven Pietsch, *Process Technology Consultant*

- **Coulomb Tech** – Darren Kim, *Director, ID and ME*
- **IDEO / Design Consulting** – Vivek Rao, *Berkeley PhD Candidate*
- **Lawrence Berkeley National Lab** – Howdy Goudey and Jonathan Slack, *Scientific Engineering Associates*
- **MicroAssembly** – Wallace Tang, *Founder and President*
- **NASA Ames Research Center** – Larry Young, *Aerospace Engineer*
- **Pratt & Whitney Rocketdyne** – Joseph Eng, *Manager, System Interconnects*
- **SanDisk** – Ryan Innouye, *Director of Strategic Projects and Programs*
- **Volkswagen** – Prasanth Jeevan, *Software Developer* and Shreya Banerjee, *Human Resources*

### 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, Sandia National Labs, Pratt & Whitney Rocketdyne, and Halcyon Molecular.

### c. Integral Group Company Tour

In the fall semester the chapter visited the Integral Group, a green design and sustainability consulting group located in Oakland. There officers learned about the company's approach to creating energy-efficient residential and industrial buildings, as well as how they renovate existing buildings to reduce energy waste.

## II. Outreach Programs and Community Service

In accordance with their requirements, all pledges must participate in two community service events the semester they pledge. Additionally, it is a newly instated requirement of the chapter that all officers participate in at least one service event each semester.

The chapter continues to work with Berkeley Engineers and Mentors (BEAM) in order to teach science and engineering concepts to high school students in the Bay Area.

A new event the chapter participated in during the spring semester was the Berkeley Marina Clean-Up. Officers and pledges joined together with members of the Society of Women Engineers (SWE), Theta Tau, and the Biomedical Engineering Society (BMES) to document and

remove waste from the shores at the Berkeley marina. The PTS members alone removed roughly 2,000 individual pieces of trash, while all the societies together removed roughly 10,000.

The chapter also participated in the weekly service event "Bike Day," hosted by Citizen Cycle. Volunteers at these events provide free assistance and advice to anyone with bicycle problems. After being properly trained the volunteers were even able to help with repairs from time to time.

At Mini-University, hosted by SWE, the chapter taught high school students about energy and dynamics via a hands-on activity in which students built and tested mouse trap-propelled cars.

At Engineering for Kids Day (E4K) mentors taught 4th to 6th graders about design stability by having them build a structure using basic office supplies (string, paper, paper clips, tape, etc.) which could transport bouncy balls from one table to another. The activity was so popular that the Mechanical Engineering Department asked the chapter to host a table at Cal Day, the campus-wide open house, and repeat the activity for visiting families.

**The PTS table at Cal Day, where visiting children intently work on the ball transporter activity.**

At the Lawrence Hall of Science, mentors supervised students from the Berkeley Maynard Academy Elementary School as they built water balloon protectors to help water balloons survive a vertical drop. The mentors also worked in the Ingenuity Lab, where they helped elementary school children with hands-on projects such as making jitterbugs from dc motors.

## III. 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. Some of the activities are mentioned in the pledge requirements section, but the following is a summary of the most popular events of the last year, as agreed upon by officers and pledges.

- Ultimate Frisbee with the Materials Science and Engineering Association
- Capture the Flag with Chi Epsilon
- Swing Dancing with Tau Beta Pi

- Driving Range
- Fenton's Ice Cream Social
- Sushi Night
- Ice Skating at the Oakland Ice Center
- Rock Climbing
- Exploratorium in San Francisco

**Officers and pledges with school mascot "Oski" at the Cal-Stanford basketball game.**

## IV. Student Relations

The Student Relations Committee, created this past spring semester, is the newest addition to the chapter and is responsible for providing help and opportunities for all students in the Mechanical Engineering Department. One of its main tasks is to take over several existing responsibilities from other parts of the society, such as planning and executing the ME Department Town Hall Meeting, as well as organizing officers for the Undergraduate Advising Day. In addition, the committee developed some new programs such as tutoring, review sessions, office hours, and the freshman mentoring program.

### a. Tutoring, Review Sessions, and Office Hours

The primary function of the Student Relations Committee is to provide academic support to non-PTS members in the form of tutoring, exam review sessions, and weekly office hours. In its first semester the committee offered these services for two classes: Solid Mechanics and Fluid Mechanics. While tutoring requests were sparse and office hours were generally unfilled, the review sessions were an overwhelming success. In particular, the Solid Mechanics review session filled the room over capacity and many students were standing, but stayed for the entire review.

### 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. When it was founded in the spring of 2011 the program had six mentees and there are currently twelve signed up for the program next fall.

### c. Engineers Week

Every year UC Berkeley celebrates Engineers Week from March 7-12 by hosting events to instill pride and interest among engineering students. This year the chapter was chosen by the Engineering Student Council (ESC) to plan and host the opening event, the Engineering Show and Tell. This activity was an opportunity for hands-on extra-curricular groups and research labs to bring in actual technology for demonstration. The planning process was arduous and fraught with unexpected developments, but in all sixteen individual student groups or research labs attended, with technology ranging from robotics and solar cars to remote controlled aircraft and ballistics. Food was served and the Dean of Engineering addressed the entire attending student body to commemorate the occasion.

### d. 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. The turnout was on the order of 40-50 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.

### 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.

## V. Chapter Meetings

There are three general meetings (GMs) each semester; officer and pledge attendance is required. The first meeting focuses 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. 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 officers made a powerpoint presentation to the pledges about themselves, featuring their faces photoshopped onto famous images or movie posters. The third meeting has changed over the semesters, but usually is dedicated towards pledge project presentations. Pledges demonstrate their design concepts and show the fully-dimensioned CAD drawings of their projects while they explain functionality to the officers.

## VI. Officer Retreat and Officer Brunch

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 Bass Lake, where officers went inner-tubing, jet skiing, hiking, story telling, s'more making, and fire building. The spring semester retreat was held in Lake Tahoe, as is the custom, and officers enjoyed skiing, snowboarding, snowball fighting, snowman/snow angel building, capture the flag, billiards, and the movie *Catch Me if You Can*.

Additionally, each week an officer at random is asked to choose a restaurant in Berkeley for the Saturday "Officer Brunch." These social gatherings allow officers to enjoy the diverse food options in Berkeley while resting from a hard week's work and enjoying each other's company. Restaurants can be of any culture or type, but no repeats are allowed.

**Officers enjoy a cookout at Bass Lake during the fall 2010 retreat.**

### VII. Convention Participation

The chapter president and external vice president attended the Pi Tau Sigma National Convention at University of Illinois at Chicago this past February. They were part of the convention breakout session and gave a presentation to all the chapters about California Pi Omega's activities during the 2009-2010 school year. They also received scholarship awards on behalf of two members of the chapter, Valerie Chang and Matthew Ford.

## C. OTHER INFORMATION

## I. Information Technology

Another new addition to the chapter is the Information Technology Committee, which is responsible for all the chapter's digital media, such as the website at http://pts.berkeley.edu or the officer wiki page at http://sites.google.com/site/berkeleypts. One of the first acts of this new committee was to make the test bank public so that not only PTS members, but all mechanical engineering students at Cal could to access the exam database. The committee has also been updating the website and even moved it to a better, more reliable server.

## II. Plans for the 2011-2012 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 of the major goals of the chapter is to create outreach activities specifically for pledges and officers, rather than going through partner groups such as BEAM and SWE. This will greatly bolster the chapter's commitment to community service and maintain the dedication of the officers to fulfilling their outreach requirements. There are also plans to revamp the website with new pages and a new Industrial Relations downloadable brochure to attract corporate sponsorship. In addition, the Industry Seminar will be slightly modified to give preference to small companies, start-ups, and those who have not presented to the campus before. This will give such companies the opportunity to attract interest even though they do not have the same recruiting resources as larger, more established companies. Finally, one of the biggest plans and hopes for the coming year is that the chapter will be able to host a Mechanical Engineering Career Fair for all students in the department. The process of contacting companies is already underway and the date for the fair has been set as September 22.

At the end of the spring semester the chapter was still growing accustomed to the introduction of two new committees, as well as a continually growing officer corps, which has gone from roughly thirty in 2009 to forty as of next fall. It is the chapter's intent to harness this momentum to achieve the vast array of ambitious goals laid out for the coming year.

## III. 2011 Graduates

| | |
|---|---|
| Alpert, Aaron | plans unknown |
| Chen, Han | pursuing MS at UC Berkeley |
| Chen, Justin | pursuing MS/PhD at Stanford |
| Hoac, Andy | pursuing MS at UC Berkeley |
| Jain, Nikhil | pursuing MS at MIT |

| | |
|---|---|
| Kimber, David | pursuing MS at UC Berkeley |
| Mallari, Randy | pursuing MS at UC Berkeley |
| Ruf, Sebastian | pursuing MS at UC Berkeley |
| Thornton, Sarah | pursuing MS/PhD at MIT |
| Wang, Jina | pursuing MS at Stanford |
| Weinstein, Lee | pursuing MS/PhD at MIT |
| Wibowo, Edwin | pursuing MS at UC Berkeley |
| Young, Jamie | pursuing MS at UC Berkeley |
| Yu, Michael | employed in Boeing |
| Zhang, Kelly | employed in Boeing |

## IV. Awards and Recognitions

2010-2011 Excellence in Teaching Award
Professor Alice Agogino

Fall 2010 Officer of the Semester
David Shulman – External Vice President

Spring 2011 Officer of the Semester
Lee Weinstein – Student Relations Co-Chair

## V. Contact Information

Reporter
David Shulman (Spring 2011 President)
dshulman@berkeley.edu

Chapter Website
http://pts.berkeley.edu