PI TAU SIGMA ANNUAL CHAPTER REPORT

2012-2013

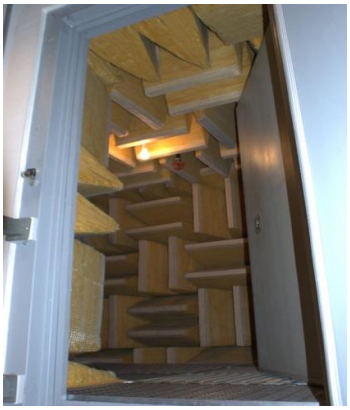
Cooper Union Pi Phi

A. Initiations

Over the past academic year, Cooper Union Pi Phi held two initiation ceremonies in November and May. Due to several circumstances, each ceremony was handled differently, as explained below.

The fall ceremony, held on November 15th, 2012, initiated 8 new members, including four seniors and four juniors. The society followed its usual procedure in accepting members for this initiation by examining the GPA's of the prospective initiates. Although the senior initiates met our local society's standard of 3.5/4.0, the junior requirement of 3.7/4.0 was relaxed to 3.5/4.0 to allow the top 10% of the class to be initiates. Our advisor, Professor George Delagrammatikas, recommended the inductees to Cooper Union Pi Phi, and the officers elected all of the inductees based on both academic performance and judgment of character. All members of Cooper's society attended the event, with the President and Vice President performing necessary duties and taking necessary oaths from the inductees. As per usual, the ceremony took place in the dark with the plaques of Pi Tau Sigma and Cooper Union Pi Phi illuminated. Afterwards, the new initiates and current members shared a meal of pizza.

Since the Cooper Union was in the process of changing the student transcript database, Professor Delagrammatikas was unable to obtain the GPA's of prospective members. Therefore, the requirements for spring initiates differed from standard. It was already known from the previous semester that the juniors would not meet the spring requirement of a 3.6/4.0 GPA. Instead of the usual procedure, Professor Delagrammatikas asked the entire ME junior class (of about 34 students) to apply if interested. The application consisted of a short e-mail to our advisor, nothing too fancy. The applicants were accepted based on academic record (having above a 3.0/4.0 GPA), respect gained from the faculty, and their potential in becoming an effective, ethical engineer. Eleven students were chosen to join the society, and induction was held on May 2nd, 2013.



Spring induction was held differently from before as the President of Chapter Cooper Union Pi Phi decided to hold the ceremony in the school's anechoic chamber, seen left. The anechoic chamber provided a unique environment for the induction ceremony on several accounts. Firstly, not all of the members could fit inside the chamber, allowing only the initiates, President, and Vice President to attend the ceremony. Also, once the doors were closed, the chamber provided complete silence (and no echo) as well as complete darkness, save when a flashlight was used to read and illuminate the two plaques mentioned above. Thirdly, not all of the inductees had had access to the anechoic chamber; the induction

allowed students to experience a phenomenal Mechanical Engineering room/testing area and learn about how it functioned. Hopefully, with the great experience that the spring induction held, future Presidents will use the anechoic chamber for the induction ceremony, or at least change the location of the induction from a classroom to a place where the inductees could have a Mechanical Engineering learning experience. After the ceremony, the inductees were joined by the remaining current members for pizza. Elections for next year's officers were held while everyone in the society was present.

B. Chapter Activities

Besides induction ceremonies, the chapter was involved with three major activities, including two community service events, and the trip to Columbus, Ohio for the convention. The two service activities occurred over Cooper Union's Winter and Spring Breaks with the Metropolitan Expeditionary Learning School (MELS) from Forest Hills, New York.

During Winter Break, MELS visited Cooper Union to work with Cooper Union Pi Phi and the SAE Formula Team. The two societies, which share members, worked hand and hand to develop a curriculum consisting of three classes, an hour each, concerning live demonstrations and examples of the conservation of energy and the workings of internal and external combustion engines. During each of the four days of service, a class of 7th graders was split into three groups to rotate between the three classes.

The first class, involving the conservation of energy and an external combustion engine, was taught by Cooper Union Pi Phi's President Martin Lawless and member David Tan. This class included the study of conversion between Potential and Kinetic energy, as well as the conversion between Chemical, Thermal, and Mechanical energies. The live demo used Sterno gel, acting as a Chemical/Potential Energy source converting to Thermal/Kinetic Energy, to heat water in a boiler to create steam, acting as Mechanical Potential Energy, to run a wheel through a piston and cylinder (Mechanical Kinetic Energy).

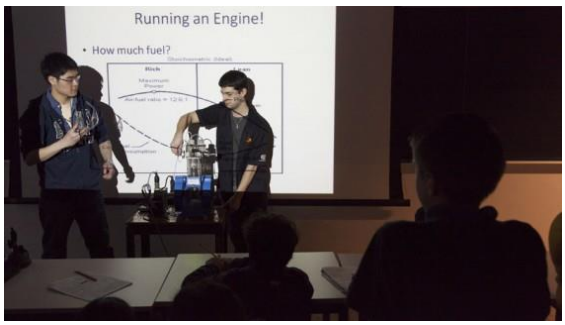
Formula SAE Captain Spyros Korsanos and Cooper Union Pi Phi member Steven Lee taught the second class of the efficiencies of an internal combustion engine. The class took the students through the four strokes of the engine, and how the engine produces power and work. In the power and work discussion, Spyros and Steven talked about the efficiency of an engine due to different air/fuel ratios. The teachers also ran a one-cylinder, internal combustion engine in front of each group of 7th graders.

The final class was a tour of Formula SAE laboratory. The students learned about the development and creation of a working racecar, from the frame to the engine to the suspension system to the braking system.

Pictures from the Winter Break MELS event can be seen below.

Martin Lawless and David Tan put on a live demonstration of an external combustion engine with 7th grade students and teacher, Miss Jenna-Lyn Zaino, looking on.

Kimberly Meehan and Alvin Zhang give a tour of the Formula SAE laboratory.



Spyros Korsanos and Steven Lee finish up a power point presentation with the demonstration of a one-cylinder, internal combustion engine.

The entire group poses on the last day of the service event.

The Cooper Union Public Affairs office covered the community service event. The article can be found at http://cooper.edu/engineering/news/start-your-engines-middle-school-students-get-taste-engineering-college-level.

For the Spring Break MELS community service event, Cooper Union Pi Phi and Formula SAE team went to Forest Hills to see the 7th graders in their own classrooms. Throughout the day, the members of both societies worked with three different classes to create battery-powered toy cars. After the kits were assembled, the cars were placed on a track and timed with different weights attached to them. This activity demonstrated the effect on speed and acceleration of adding weight to a car.

After the day at MELS, the students gave each of the Cooper Union instructors a gift of the four-cylinder, internal combustion engine projects. Along with a written portion, the students also created model cylinders out of recycled materials. Some of the projects can be seen to the right.

The last event was Cooper Union Pi Phi's participation in the 2013 National Pi Tau Sigma Convention at Ohio State University in Columbus, Ohio. Two members of Cooper Union Pi Phi attended: the President Martin Lawless and the President Elect Steven Lee. The two members participated in the Budget Small Group, which wound up talking about amendments to the

constitution. The members enjoyed the three day event, and made good friends with members from Auburn University in Alabama and Boston University. Hopefully, the relationship between the schools can be continued in the future.