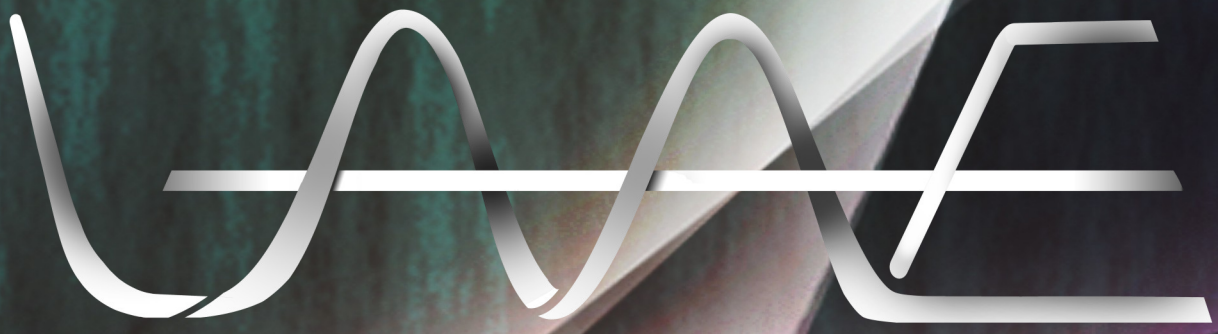
Los Altos Academy of Engineering

Press Kit

2009-2010



Building a cleaner, more fuel efficient tomorrow

Current Overview

The Los Altos Academy of Engineering (LAAE) is a student run program that offers high school students opportunities to explore career paths through education, training in vocational and business skills, hands-on experience, and exposure to engineering and technology. Originally founded in 1989 by Mr. Robert Franz at Los Altos High School, LAAE is a joint venture between the Hacienda La Puente Unified School District and the La Puente Valley Regional Occupation Program.

Currently, the Los Altos Academy of Engineering's primary focus is on HICE (Hydrogen Internal Combustion Engine). HICE is a one-of-a-kind vehicle utilizing a student-modified engine to combust hydrogen. HICE is different from traditional hydrogen cars as they are generally fuel cell vehicles. The concept behind this vehicle is similar to that of a gasoline vehicle. Using a four-stroke engine, it is designed to burn hydrogen without the use of gasoline, therefore reducing carbon emissions.

Aside from HICE, the LAAE is also working on an autonomous vehicle named Project Zeus. Originally, this vehicle was planned for competition in the Defense Advanced Research Projects Agency Urban Challenge, a highly sophisticated competition comprised of top colleges and private companies from across the nation. While the last and final race was in 2007, the LAAE has no plans to end work on this project as we continue to strive for a perfect autonomous vehicle. Toyota generously donated a Scion xB in January 2008. After the test mule is finalized, students will implement parts onto the Scion including LIDAR, GPS, IMU, SONAR, CMU cameras and a total of ten computers.

In addition to road running vehicles, the LAAE also sports a solar boat team. The solar boat team competes in the Metropolitan Water District's Solar Cup competition. Composed of students in the lower grades, the electric boat is charged through solar panels housed on the boat, This project requires both speed and efficiency. The LAAE solar boat team is organized and guided by senior students of the academy and fosters leadership and teamwork amongst the students.

In President Obama's State of the Union Address in February 2010, he mentioned a need for change in education and a focus on energy research. His focus goes hand in hand with the guiding principles of the academy as it has a twenty year history of producing energy efficient vehicles. In addition, the academy's students excel in mathematics and science as they work on engineering projects more innovative than what the marketplace has to offer. The Los Altos Academy of Engineering offers the "world-class education" mentioned by the President to a group of high school students diverse in backgrounds, ethnicities, and genders, working in a team and project oriented environment.

LAAE History

Interested in delving into the world of robotics, a group of students gathered in the corner of Los Altos High School campus in 1989. These inspired individuals were able to create robots that were powered by solar panels retrieved from calculators. Started by students interested in making robots, the LAAE has grown into a program unique to the world.

The Los Altos Solar Vehicle class was formed as students created solar and electric vehicles. The LASV has participated in many solar vehicle challenges, both domestic and abroad. In 1996, the students built Solar Shadow I and competed in the World Solar Challenge in Australia. It was the only high school team in the competition to finish the race. In 2001, students built and raced Solar Shadow II in a cross-country race, the American Solar Challenge. Besides being the only high school that entered the race from Chicago to Los Angeles, LASV finished 22 out of 30 overall participants.

In 1999, the Los Altos Academy of Engineering became the official name of the program as the scope of the program grew. The LAAE robotics team started to compete in the Botball competition in 1999. Since then, the LAAE robotics team has received prestigious recognition for its accomplishments. In 2005, the robotics team placed first in regional competition and went on to place third in national competition. In 2009, the LAAE team was able to place first in regional competition and second place in national competition.

The most successful venture of all has been the Build Your Dream Vehicle (BYDV) competition. In this competition, students design vehicles, create models, and then present marketing plans. The LAAE BYDV team defeated 320 other entries and became the only high school to win back-to-back national championships in 2005 and 2006, a tremendous accomplishment.

The year 2001, was the turning point for LAAE. Since students were not able to find solar cells, the academy shifted its focus from a solar vehicle to a hydrogen fuel cell vehicle. The building blocks of Infusion, the first hydrogen fuel cell vehicle to be built by high school students, was set in place. Featuring an aerodynamic body, the vehicle houses a metal chassis completely designed and built by students. Infusion won first place in the 2007 Shell Eco-marathon and second place in 2008. Infusion retired in 2009 as it finished its final lap at the Shell Eco-marathon as a show vehicle. From its inception, the program has become a leader in engineering education for high school students and has worked hard in building a cleaner and more fuel efficient tomorrow.

About Us

Mission

The Los Altos Academy of Engineering is a student-run program that offers high school students opportunities to explore career paths through education, training in vocational and business skills, hands-on experience, and exposure to engineering and technology.

Vision

The Los Altos Academy of Engineering aspires to become the leader of innovative solutions while educating public high school students to interact in a business setting with the skills of engineering and liberal arts.

Strategy

The Los Altos Academy of Engineering achieves its vision by providing opportunities for students to compete in significant competitions organized by students, use state of the art technology, and interact with professionals in technical fields.

Goal

The Los Altos Academy of Engineering has the following goals:

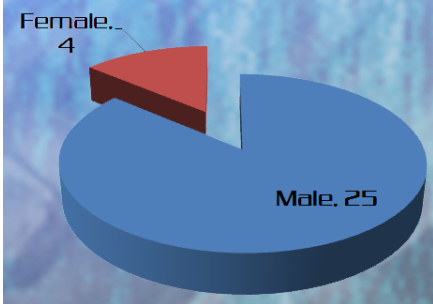
- Foster student interaction
- Become a leader in
  - Education
  - Innovative technologies
- Educate students in:
  - Engineering
  - Liberal Arts
  - Leadership

The Los Altos Academy of Engineering is one of the remaining career and technical education (CTE) programs in the state of California dedicated to providing high school students with a hands-on engineering experience.

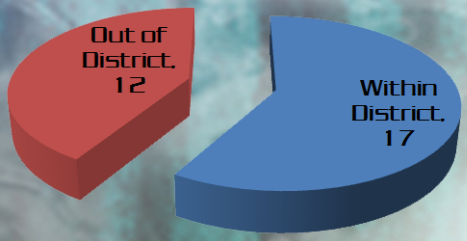
FAST FACTS

Enrollment

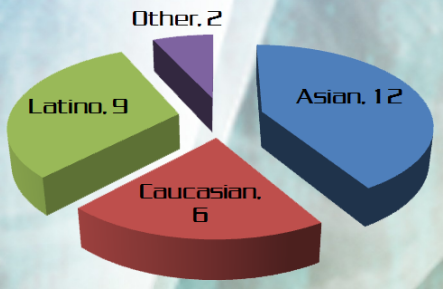
One of the Los Altos Academy of Engineering's primary goals is to foster interaction among academic and vocational students. College prep students rarely attend classes with non-college bound students. As an exception, LAAE consists of a diverse student body ranging from students receiving special education services to student athletes and top academic students. This program is designed to build cooperation among these groups, igniting interest in academic classes for one group and providing hands-on experience for the other.



By Gender



By District



By Ethnicity

Success

Students have excelled in extra-curricular activities and still maintained strong academic performance. Since the founding of the program, students have been admitted to prestigious universities not only because of the title of the program but also because of characteristics commonly associated with students of our program. Here is a brief list of universities that our students have been admitted since its inception.

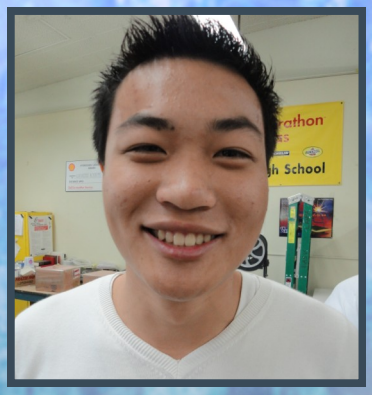
Brigham Young University
California Institute of Technology
Cornell University
California Polytechnic State University
- Pomona
- San Luis Obispo

Harvey Mudd College
Massachusetts Institute of Technology
Stanford University
United States Air Force Academy
University of California:
- Berkeley
- Los Angeles
- San Diego
- Santa Barbara
- Irvine
- Riverside

University of Southern California

Key Figures

Danny Shin
Composites Team leader



Sungyop Whang
Design Team Leader

Arielle Barnes
Electrical Team Leader

John Chen
IT Team Leader

Eric Munoz
Mechanical Team Leader

Eduardo Barrera
PR Team Leader

John Weng
Project Manager

Ed Richter
Advisor

Edward Richter

Head Advisor

Mr. Ed Richter came into the program as mentor of the Botball team and has helped them to championships numerous times. Now Richter oversees the LAAE program. Aside from being the mentor of the Botball team, Richter has also taught introduction to robotics and advanced computer science. In the past, Richter was involved with the academy's DARPA project as lead advisor. He has been with LAAE for 7 years and has always been a great help. After the retirement of Mr. Robert Franz, Richter has become the leading figure of LAAE.

Richter obtained his Bachelor's Degree from American University. he began his career in advertising and public relations. The agency where he worked specialized in extreme sports. Richter became very familiar with Vans and G-Shock as a result of working there. Such accomplishments were the prelude to Richter's leadership role in LAAE.

When Richter left the field of public relations, he decided to go into teaching. He attended Cal State Los Angeles and obtained his special education and industrial technologies teaching credentials. In the fall of 2002, he became a teacher at Los Altos High School, teaching special education until 2004. Richter then taught computer science and robotics. With that, he took over the Los Altos Academy of Engineering and has continued the legacy passed down by Bob Franz.

Contact Us

Los Altos Academy of Engineering
2009-2010

Contact:

John Weng
Project Manager
johnw@lasv.org

Los Altos Academy of Engineering
15325 E. Los Robles Avenue
Hacienda Heights, CA 91745
Website: www.lasv.org
Phone Number: (626) 330-1096
Fax Number: (626) 961-2153

Advisor:

Ed Richter erichter@hlpusd.k12.ca.us