SOLAR CUP

The Solar Cup is an exciting high school solar boat competition sponsored by the Metropolitan Water District and the Upper San Gabriel Water District. The boats are designed and constructed by students. LAAE uses Solar Cup as a 9th and 10th grade project. The team placed 6th overall out of 27 teams and 3rd place in the rookie division in 2004. The 2005 team placed 6th place overall out of 33 teams.

DARPA URBAN CHALLENGE

The Defense Advanced Research Projects Agency (DARPA) is the central development organization for the Department of Defense. The DARPA Urban Challenge is an annual competition where autonomous vehicles safely execute missions in a complex urban environment with moving traffic. This challenge allows students to overcome technical challenges and understand how autonomous vehicles work.

HYDROGEN FUEL CELL VEHICLE

Infusion, developed in 2001, is the first high school designed and built hydrogen fuel cell vehicle in the United States. Infusion is designed to travel 40 miles per hour for one hour continuously. Fundraising for the project which had a price tag of $35,000, was completely managed by students. Students have dedicated timeless hours to building the vehicle that has been the longest project the LAAE has worked on.

HYDROGEN INTERNAL COMBUSTION ENGINE VEHICLE

HICE (Hydrogen Internal Combustion Engine), developed in 2008, is a vehicle designed and created by the students of the Los Altos Academy of Engineering. The goal of *HICE* is to provide an efficient way of travel while remaining environmentally-friendly. *HICE* is designed to travel fifteen miles an hour continuously. The vehicle runs on pure hydrogen to a four-stroke Honda GX-35 engine. This project was completely managed by students who have dedicated timeless hours to accomplishing their goal of competing in the Shell Eco Marathon Americas.

COURSE OFFERINGS

Gateway Electives

Pre-Engineering (ROP)
Introduction to Robotics

Academic Core

Algebra I
Chemistry
AP Chemistry
Physics AP
Physics
Calculus BC
Geometry
Algebra II
Trigonometry
Calculus AB

Advanced Electives

Advanced Computer Science
AP Computer Science A
Introduction to Electrical Apprentice
Engineering Technology
Manufacturing Technology (ROP)

Program Awards

Golden Bell 2004
SCAQMD Clean Air 1997, 2003
Model Practice 2001, 2004
BP A+ For Energy Award 2004

SPECIAL THANKS TO

Hacienda La Puente Unified School District
ROP
California Steel and Tube
Cerritos College
Edmunds.com
AC Propulsion
Toyota
Upper San Gabriel Valley Municipal Water District
AQMD
GS Stick To Quality
RC Fuel Injection
Cal State LA
SKF
Perma-Cool
TEKLAM
Walmart
Royal Purple Synthetic Motor Oil
Reichhold
superfly cycles
Scott Engineering, Inc.
Cal Poly Pomona
Charles Darwin University
STRO Aluminum Treating Co.
BRIMAR PRODUCTS
Banning
AMC Theatres
AIRTECH
Boeing
Haddick's Towing & Auto Body
Enerpulse
Popular Science
Northrop Grumman
MSD Ignition
Southern California Edison
Los Angeles Tribune
EGK Foundation

DONATIONS? IF YOU WOULD LIKE TO MAKE A DONATION PLEASE CALL US AT (626) 330 - 1096 OR EMAIL US AT LAAE.PR@GMAIL.COM

LOS ALTOS ACADEMY OF ENGINEERING

2009-2010 ENGINEERING TEAM

LOS ALTOS HIGH SCHOOL

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LOS ALTOS ACADEMY OF ENGINEERING

MISSION STATEMENT: 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.

DESIGN— This team is in charge of all of the basic designs for all of the projects. Using programs such as AutoCAD and Rhino, this team works to create the blueprints necessary for parts and vehicles.

ELECTRICAL— This team is responsible of all of the electrical components on the various projects.

MECHANICAL— All of the parts within the projects are hand-made by students in the mechanical team. They work with different machines to fabricate all of the parts needed to run the car, boat, or airplane.

COMPOSITES— Our composites team works with the chemical aspect of engineering. They created the lightweight body of HICE and Infusion through the infusion process.

INFORMATION TECHNOLOGY— IT takes care of the computers and the server. They fix computers and make sure that everything is in workable order.

PUBLIC RELATIONS— PR is the heart of Engineering. This is the team of students who reach out to the outside

WINSTON SOLAR CHALLENGE

Cool Runnings is a full-scale solar vehicle designed and constructed by academy students. *Cool Runnings* won the first Winston Solar Challenge at Dallas, Texas in 1995. This 210-mile event was the first national competition for solar cars constructed by high school students.

1996 WORLD SOLAR CHALLENGE

The Los Altos Solar Vehicle Team constructed *Solar Shadow*, their second solar vehicle. *Solar Shadow* participated in the World Solar Challenge in Australia where it competed against corporations and universities. The team was recognized for their perseverance in completing the race under adverse conditions and received two major awards "Best Team Spirit" and "School of the Americas."

SOLAR BIKE RAYCE USA

The Los Altos Solar Vehicle Team first competed in the Solar Bike Rayce USA in 1997 with *Lightspeed I*, *Lightspeed II*, *Lightspeed III*, and ended with *Solar Shadow III*. In 1998 *Light Speed*, was the first car to ever finish the 100 km race. *Light Speed* completed 62 miles in 2:22:23, setting a national record. These vehicles have completed the 100 km race finishing first place three times and setting two national records.

HUMAN-POWER AIRPLANE (HPA)

The Grasshopper is a pedal-powered airplane, something never before accomplished by high school students. The goal was to fly 100 yards non-stop. With an awesome wingspan of 96 feet, the Grasshopper was 20 feet tall, 36 feet long and weighed 90 pounds. This three-year project involved many dedicated students. *Grasshopper* achieved flight in June 2000.

2001 AMERICAN SOLAR CHALLENGE

The American Solar Challenge is a Transamerica Solar Car race sponsored by Formula Sun and the D.O.E. The race is approximately 2,300 miles and runs from Chicago, Illinois to Claremont, California. Los Altos was the only high school competing against university and international teams in this 11-day challenge. This race ran from July 15 - 25, 2001. Using a design similar to the solar car used in the World Solar Challenge, *Solar Shadow II* had a completely redesigned frame and chassis. The Los Altos Academy of Engineering placed 22nd out of 30.

AUTONOMOUS ROBOTS: BOTBALL

Botball is a robotics competition sponsored by NASA that incorporates processors with Legos. Los Altos has competed in Botball since 2002. Teams have placed in the top ten at national competitions in 2002 and 2004 and won third place in 2005. Botball is open to both upperclassmen and underclassmen.