Real World Engineering

Practical experience stems from doing not simply listening. Iowa State University not only encourages students to succeed in academics, but teaches students the skills to succeed in industry. Open labs is a program within the Department of Aerospace Engineering which allows students to get real hands on experience and receive class credit for it. Students learn how to apply engineering principles and how to work with colleagues in a team. “They’re defined as student lead projects. All I am doing is providing a structure for them and support when they need it and encouragement when they need it,” said Dana Haugli, senior lecturer in aerospace engineering and advisor for all open lab projects.

Open labs provides Iowa State engineering students from freshman to seniors with freedom to work on a project of their choosing. The only requirement is that students must compete or present their project at a national event or competition. All projects are funded by the Department of Aerospace Engineering.

Any project relative to Aerospace Engineering gets approved as an open lab project. Aerospace Engineering concepts are applied to more than just airplanes and space shuttles. Aerospace Engineers are qualified to work on anything that moves through water or air. Students have taken these concepts and applied them to open lab projects ranging from building planes and wind tunnels or even researching frisbee discs and water sports equipment.

Aerospace Engineering:
the field of engineering concerned with the design, development, construction, testing and operation of vehicles operating in the Earth’s atmosphere or in outer space*

Open Lab Competitions

This is a summary of some of the competitions aerospace students participate in.

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<th><strong>Society of Automotive Engineers: Aero Design Series</strong></th>
<th><strong>American Institute of Aeronautics and Astronautics: Design, Build, Fly</strong></th>
<th><strong>American Institute of Aeronautics and Astronautics: Region V Conference</strong></th>
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<td>Seventeen students participated in the 2010 Aero Design Series East in Fort Worth, Texas. Students are required to build a remote controlled airplane within certain constraints. Teams receive points based on a technical report, a presentation, and how much weight their plane can carry.</td>
<td>One team of students attended the Design, Build, Fly competition in Wichita, Kansas. Students build a remote controlled airplane and receive points based on their technical report and their ability to complete three missions and the time the missions are completed in.</td>
<td>Twenty six students attended the Region V Conference in Wichita, Kansas. Students are judged by professional engineers on technical reports and presentations. Scores are awarded based on the student’s performance.</td>
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“I think every aero student who wants hands on experience should at least try a year of open lab because it gets you involved with a project that you’re responsible for and you take that project off campus and display what you’ve done,” Haugli said.

Open labs not only provide students with hands on experience, but also give students visibility with industry. Many of the competitions students attend are sponsored by major employers. These employers get to see what Iowa State students are capable of without looking at a single resume.

Students also get a chance to mingle with engineering professionals and ask them for advice. It is a valuable learning experience.

“Every year I’ve had open lab, somebody from open lab comes and tells me that ‘Well, we found a job through this company because they heard about our project,’” Haugli said.

Open labs were started by 2 honors students in 2003. They were looking for a mentor for their research project and approached Dana Haugli for help.

Haugli agreed become their research mentor. The project was very successful and the students presented their research at the Region V Conference.

The next year Haugli decided to mentor more projects to see how open labs would operate with more people. Twelve honors students participated in the program and again the projects were very successful.

In 2005, Haugli took a year off to consider whether he wanted to keep the program going.

In 2006, open labs opened up to all students in engineering. Most of the students participating are aerospace engineers, but any student in engineering is welcome to join.

Now 60 to 80 students get involved with open labs each year. This is roughly 10 percent of all students in aerospace engineering and engineering mechanics according to the Iowa State University fact book.

Open labs have been a valuable part of Iowa State aerospace engineering education providing students with practical experience and professional visibility.

“IT’s definitely not about winning. It’s about succeeding,” said Dana Haugli, senior lecturer in aerospace engineering and advisor for all open lab projects.
AirISU pulls sport plane in VEISHA parade

AirISU is one of the many student engineering clubs on campus. It was started in 2004 with the sole purpose of building an airplane from a kit donated by Zenith Aircraft Company. The plane was set to fly this semester, but was delayed because of construction complications. Despite the delays the students of AirISU keep on building and even pulled their plane proudly in the 2010 VEISHA parade.

“One of the really cool things about this club is you get to do everything,” said Gregory Eno, junior in aerospace engineering and vice president of AirISU. “You start putting things together as far as what you are hearing about in your classes and what it means and how it applies to an actual aircraft.”

The plane is a zenith zodiac 650 and is categorized as a two seated light sport aircraft. It is made completely out of aluminum and has a 27 foot wingspan.

Being part of AirISU gives students engineering experience outside the classroom. Students learn that designing an aircraft is much more than theory. The manufacturing process of airplane parts and implementing them into a final design has to be considered.

“The experience is invaluable,” said Scott Hamilton, senior in aerospace engineering and president of AirISU. “[The club] allows anyone, freshman through seniors, to get involved with the building process.”

The club hopes to have the plane finished and flying by Spring 2011. There is some question on what the club will do after the plane is completed. AirISU will most likely start building another kit airplane.

Note from the Author:

Summer is vital when it comes to choosing a college to attend in the fall. My advice to incoming freshman is don’t be nervous and choose a university that is right for you. At the end of the day it is your education. I can only tell you Iowa State University has opened many doors for me and strives to do the same for future students. It gives students the freedom to pursue their dreams and the confidence to succeed. Enjoy your first summer as an official high school graduate!

Heidi Ebert
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“Each day, the College of Engineering is improving the quality of life in Iowa, the nation, and the world. Our solutions are not just mechanisms and processes: they are pathways to human progress.”

-The 2050 Challenge

To read the challenge click here