

The sky's the limit

Students' missile carrier ranked third in national competition

BY ROSALYNN VASQUEZ

The Battalion

What began as a class project for six Texas A&M senior aerospace engineering students became a nationally recognized accomplishment.

Students in Dr. John Valasek's aerospace vehicle design class placed third out of 30 universities nationwide in the 1999-2000 American Institute of Aeronautics and Astronautics (AIAA) Undergraduate Team Aircraft Design Competition for the design of a cruise missile carrier.

The team members were given a request for proposal (RFP) to design an aircraft cruise missile carrier that would carry 10 AGM-86C cruise missiles to a combat area, launch them at a target and then aircraft return to the base without becoming a target itself.

The idea is based on the recent conflicts in the Middle East.

The team calls themselves Aggies Providing EXcellence (APEX) and consists of team members Dallas Hopper, Blue Bradley, John Cox, Jarrod Jensen, Theerayaut Kausakul and Joel Townsend.

Valasek, faculty adviser for the team an aerospace engineering professor, said in order to do this, the team encompassed a "cradle-to-grave" airplane design — meaning that the ideas were generated from scratch.

The project took an academic year to complete. The first semester was devoted to creating the design, and during the second semester, the team built a wind tunnel model and tested its performance with the flying model.

The design team showcased its final report in the critical design review portion of the competition, where it received feedback from NASA's Johnson Space Center, Boeing Commercial Airplane Group and Lockheed Martin Tactical Aircraft Systems.

The RFPs and final reports are sent to professional engineers in the industry to be judged on technical content, organization and presentation, originality and practical application.

Valasek said aerospace companies are carefully looking into conducting preliminary design

studies on the RFP submitted this past year.

"This is a vehicle which very conceivably can be built and used by the U.S. military," Valasek said. "It is a very realistic project to work on because it is a real-life, real-world situation."

Hopper said the key to the team's success was collaboration.

"Teamwork is one of the major parts of this project," he said. "If you cannot divide the work between people who are specialized in a certain area, you overloaded one person, then the whole team fails."

This is the first time in 15 years that an aero-

space engineering team from A&M has won an award in the competition.

Other universities competing in this competition included Massachusetts Institute of Technology, Ohio State University, Purdue, Virginia Tech and University of Kansas.

"This experience has made me feel more capable and less scared of the real world," Hopper said.

The team was awarded the Stan H. Lowy Award from A&M's aerospace engineering department. The award is given for exemplifying excellent technical merit, innovation and teamwork.



COURTESY OF THE DEPARTMENT OF AEROSPACE ENGINEERING

Members of the Aggies Providing EXcellence Team (Team APEX) add finishing touches to their design as faculty adviser Dr. John Valasek looks on. The team placed third in national competition.

Gulf Coast states face deadly fever

HOUSTON (AP) — Thanks to a damp climate and proximity to the Caribbean and Mexico, the Gulf Coast states are threatened with an epidemic of dengue fever, a potentially deadly mosquito-borne illness common in many developing countries, a public health researcher said yesterday.

"It has become a problem in all the Gulf Coast states, particularly in warm, wet urban areas like Houston, Miami and New Orleans," said Frank Cortez-Flores, a researcher at California's Loma Linda University School of Public Health.

There are four varieties of the dengue fever virus and no vaccine for any of them, Cortez-Flores said Monday at the American Society of Tropical Medicine and Hygiene's annual meeting in Houston. The mildest form is characterized by flu-like symptoms and a rash on the feet or legs. About half die who contract the most serious form, dengue hemorrhagic fever, he said.

The disease is among the leading causes of childhood death in Thailand, Indonesia, Bangladesh, the Philippines and India, he said.

Cortez-Flores said Texas, where several outbreaks were reported in the 1990s, has the most cases in the nation in part because of poor hygiene, sewer systems and water drainage in its 1,500 colonies, substandard settlements along the border where about 400,000 people live.

He said many people have had a mild form of dengue fever but are unaware of it, mistaking it for the flu. They remain carriers for life and if bit by a mosquito can spread the disease.

"Mosquitos are flying syringes, and mosquito control measures are the backbone of dengue prevention

and control," he said.

One Texas man died in July of dengue hemorrhagic fever, the first in the state to die this year from the disease. He is thought to have contracted the disease in Bangladesh.

Last December, a South Texas girl died from the fever, which state health officials believe she contract-

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ed in Mexico.

Last year, there were 51 cases confirmed by the state health department, and 16 in South Texas. Other cases are believed to have been contracted in Brazil or Mexico, where about 7,000 dengue cases were reported in northern Mexico in 1999.

The last major epidemic in Florida was in 1935, when 15,000 Miami-area residents were infected. Since then, fewer than 100 cases have been reported because of mosquito eradication programs. Florida public health officials, however, have said they fear an increase in cases because the disease is prevalent in the Caribbean and because of a large influx of international travelers to the state.

Science in Brief

Chemical safety database set up

Texas A&M's Mary Kay O'Connor Process Safety Center has received \$500,000 to create a nationwide data system for chemical safety and chemical accidents. This center is part of the Texas Engineering Experiment Station on campus.

U.S. Rep. Tom DeLay from Texas, who was instrumental in securing the start-up funds, said in a press release that this is a great victory for A&M and for the prevention of chemical safety accidents around the country.

The data system is a part of a new initiative by the University to identify national chemical safety

goals, implement programs to reach those goals and establish a way to measure progress toward the goals.

Tests developed for heart patients

Researchers from Texas A&M's chemistry department are studying factors other than high cholesterol levels, that contribute to coronary artery disease.

A new screen test, known as lipoprotein fingerprinting, provides information on the cardiovascular health of the patient and can be as unique as an individual fingerprint.

Doctors can determine the most effective therapy for their patients by observing this fingerprint pattern.

New treatments for breast cancer being studied

WASHINGTON (AP) — Vicki Freeman lay perfectly still inside a tube-like machine as ultrasound waves beamed deep into her cancerous breast. Little bursts of heat signaled the beams were cooking her tumor to death — without a mark or cut to her skin.

Freeman is one of the first women to try a novel medical experiment to see if this "focused ultrasound therapy" might one day offer a noninvasive alternative to breast cancer surgery.

It will take years of study to prove whether cooking tumors works. But as women already clamor for less disfiguring breast surgery, pilot experiments at Houston's M.D. Anderson Cancer Center and Boston's Brigham & Women's Hospital signal the latest in a growing trend: research on ways to make cancer removal not just less invasive, but to quit cutting patients altogether.

"If you think about surgery, it's sort of medieval," said Dr. Darrell Smith, a Harvard University radiologist conducting Brigham & Women's

study. "We're trying to get more elegant in the way we do this. It's kind of Star Trek in a way." Yet it raises a serious safety question: Are doctors trying to make tumor removal too minimal, particularly for diseases like breast cancer where surgery can work very well? After all, scientists already know that some younger women undergoing lumpectomies get too little tissue cut out for cosmetic reasons, leaving them more vulnerable to cancer's return than if they had properly sized lumpectomies. Plus, if nonsurgical methods do prove safe, they will require more complicated machinery — and thus will be more expensive — than a simple lumpectomy.

But some radiologists insist noninvasive technologies should eliminate just as much tumor as a surgeon's knife. A small Harvard study, to be unveiled at a radiology meeting next month, suggests focused ultrasound can successfully cook away benign breast tumors called fibroadenomas, bolstering hopes for the new cancer experiments.

And while breast cancer offers an easy-to-study target, the ultimate goal is to one day help harder-to-treat brain, liver or soft-tissue cancer, or other disorders like uterine fibroids, where surgery is not optimal.

"We know from basic science and animal research that it can work. Now we have to show it's feasible," said M.D. Anderson's Dr. Marc Fenstermacher, who treated Freeman.

To do that, Fenstermacher and Smith will test 30 women destined for surgical removal of small breast tumors. Patients lie inside a specially outfitted MRI, or magnetic resonance imaging, machine.

Guided by the MRI's continual sharp picture of the tumor, doctors position ultrasound focusing equipment called transducers, built into the MRI table, to beam into the tumor. On the MRI, the tumor lights up as 10-second blasts heat it to more than 140 degrees.

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