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Greetings from Agricultural and Biological Engineering

Greetings from ABE@Illinois! A little over five years ago, I had the distinct pleasure of returning to the University of Illinois to become professor and head of the Agricultural and Biological Engineering department. Being on this journey with a great department has been a delightful experience. It has taken our department through the processes of building on past successes and envisioning brilliant futures. As a department we have charted effective courses and implemented strategic tasks. We have given our students the opportunity to benefit from experiential learning. This newsletter communicates some recent highlights and celebrats those achievements.

I would like to take this opportunity to sincerely thank all of you who have been valuable partners during this journey. I invite you to continue to play an active role in advancing the goals of ABE@Illinois.

I wish you and your family a happy holiday season and a wonderful new year!

K.C. Ting
Professor and Department Head
ABE@Illinois

Do you know a high school student who is interested in ABE or TSM? Tell them about the summer camps associated with the department.

Illini Summer Academies
Agricultural & Biological Engineering: Technical Systems Management
Check the website for further information:
http://web.extension.uiuc.edu/state4h/events/summeracademies.cfm

Research Apprentice Program I
Agricultural & Biological Engineering
This three-week career exploration and awareness camp is open to all freshmen and sophomores from under-served or economically disadvantaged groups. The costs of meals, activities, supplies, and housing are covered by the program. Students work in teams to discover the many ways in which ABE is positively impacting the world and make a presentation on what they have learned at the conclusion of the camp. Check the website for further information:
http://www.aces.uiuc.edu/Academics/Diversity/pre_collegiate/rap1.cfm

Research Apprentice Program II
Agricultural & Biological Engineering
This program offers a seven-week intensive laboratory and academic enrichment experience working with a faculty or graduate student mentor in one of the many areas of ABE. The costs of meals, activities, supplies, and housing are covered by the program, and admission is open to all high school juniors from under-served or economically disadvantaged groups. Preference is given to previous RAP I participants. Check the website for further information:
http://www.aces.uiuc.edu/Academics/Diversity/pre_collegiate/rap2.cfm
Bode Easing Into Retirement

After 35 years in the Department of Agricultural and Biological Engineering, Loren Bode, former Department Head, retired in May of 2008. But he is still easing out of the many and varied leadership roles he filled so capably for so long. Only recently has he stepped back from the duties of student recruitment, departmental tours and service on a variety of committees.

“I’m still the coordinator of the Pesticide Safety Education Program, but I’ve told them they need to start looking for someone to take over that role as well,” said Bode.

Loren began his career in Agricultural Engineering at the University of Missouri, Columbia, where he received his bachelor’s degree in 1965.

“After graduation, I took a full time position with the USDA Agricultural Research Service (ARS) in agricultural chemical application technology,” said Bode, “and they allowed me to continue work on my advanced degrees. I finished my Ph.D. in 1972, and ARS transferred me to Stoneville, Mississippi to begin an application technology project at their new research center.”

A year later Bode’s career took a different path, when Carroll Goering suggested he consider a position at the University of Illinois. “Carroll was here on sabbatical leave,” said Bode. “He knew about me, and thought I might be interested in an Extension position that was available. I came to take a look at it, and accepted the position in the fall of 1973.”

Bode worked with Jack Butler doing research to develop techniques for measuring pesticide drift, and measuring the effectiveness of equipment used for incorporating pesticides into the soil. Although four decades of research have made him what many consider to be the national authority on pesticide application techniques and equipment, Bode said in the Extension community, he is probably best remembered for his portable spray “patternator” table.

“Everyone else would show up at an Extension meeting with their slides, but I had to set up a spray table that had pumps and nozzles and strobe lights,” said Bode. “I would put a nozzle on and demonstrate to the audience how it performed. I have to say I received more satisfaction, and probably did more good, in really educating both farmers and commercial applicators with my spray table.”

Bode also had a passion for teaching, and in 1978, with the assistance of Jack Butler, he initiated a course on application technology. When Bode became department head, he continued teaching the class, with just a few changes.

“I hired students that had already taken the course, and they prepared the labs and the homework and graded the reports,” said Bode. “I loved being able to just go in and teach. That was the most fun I had.” The course has been popular across the College and is still being taught today.

Bode first served as associate head under Roscoe Pershing. When Pershing went to the College of Engineering in August of 1992, Bode was named interim head until March of 1993, when the position became official.

“The day after I was named head, US News and World Report came out with their national rankings, and we were ranked as the best ag engineering department in the nation. I like to kid Roscoe that it only took me one day to get the department to number one,” Bode joked.

Bode served as Department Head from March of 1993 through December of 2004. Loren said he felt one of his most important contributions as Head was providing guidance as the department began the transition from agricultural engineering to agricultural and biological engineering.

“There was a shift in the culture of our profession,” Bode said. “We were trying to figure continued on page 15
Kay Whitlock Leads O’Hare Modernization Program for Christopher B. Burke

Kay Whitlock ’70 AgE, is a vice president with Christopher B. Burke Engineering, Ltd., in Rosemont, Illinois. Whitlock’s 39-year career has focused on flood control and stormwater management, or a variation on those themes.

“Currently, I’m the project manager for our company’s work on the O’Hare Modernization Program,” said Whitlock. “That’s the most entertaining job I have right now. Our team manages the regulatory part of the water resources. We size the detention basins to be sure they meet the requirements. We do all the hydrologic modeling and the majority of the hydraulic modeling.”

In addition to her work with the O’Hare Modernization Program, Whitlock is an on-going consultant for Will County, Illinois as they implement a stormwater program. She is also the project manager for a client in northwestern Indiana who is working on an eco-system restoration project.

Whitlock’s career began in Springfield, Illinois, where she worked for the State of Illinois in the Department of Transportation, the Department of Agriculture and the Illinois EPA. She worked for the state for 18 years, and then took a position for two years as the first Chief Stormwater Engineer for DuPage County. In 1990, Whitlock was hired as the Flood Control Manager for the Santa Clara Valley Water District in San Jose, California.

“My work in Illinois required me to interact regularly with the USDA as well as the Army Corps of Engineers,” said Whitlock. “Santa Clara hired me as a flood control manager primarily for my knowledge and understanding of the federal programs in both those organizations. Santa Clara had millions of dollars worth of projects they were negotiating with the Corps of Engineers, and they needed someone who could help them continue to leverage those federal dollars and bring them into the Silicon Valley.”

Whitlock is very active in the American Society of Civil Engineers, and recently finished her term on the board of the Illinois section as past president. She also has a strong interest in engineering ethics and has served on an international committee to develop an international code of professional practice worldwide for civil engineers.

Whitlock said her personal passion is working on issues serving the homeless.

“That passion actually came to me through flood control,” said Whitlock. “When I worked in Santa Clara, student activists at San Jose State University were protesting in and occupying a building my agency had purchased to build a flood control project. They didn’t know about the project, and didn’t understand why the building couldn’t be used to house the homeless. It was my job to get them out of there, without appearing on the front page of the paper myself. So we negotiated an agreement with them to allow another vacant property to be utilized as transitional housing until it was needed for the flood control project.”

Whitlock continues to work for the needs of the homeless in Chicago, where she currently serves as a Director for Mercy Housing Lakefront.

As a woman in engineering in the 1960’s, Whitlock’s memories of her time at the U of I are probably different than most ag engineers.

“It’s always been clear to me that if I hadn’t changed my major to ag engineering, I don’t think I would have survived in engineering. In the ’60’s, society wasn’t that open to women engineers,” said Whitlock. “But ag engineering was completely open to me. They were very thoughtful of how to help me be a part of the process.”

Although Whitlock said she sometimes experienced discrimination outside the department, the male students in the department had no trouble accepting her. “I seemed to become everybody’s sister,” said Whitlock. “If I had a bad experience somewhere on campus, often times there’d be another ag engineer in the class who saw it,” she said. “So that ‘brother’ on that day would walk with me to the next class and say something like, “Boy, that guy was a jerk, wasn’t he?” continued on page 15
Shan Prendergast in Corporate Management at Deere

Shan Prendergast ‘91 AgM, is the worldwide training manager for John Deere Power Systems, located in Waterloo, Iowa. Prendergast leads all training for the engine and drive train components for Deere’s internal channel partners (the Agricultural Equipment Division and the Construction and Forestry Division) as well as for Deere’s original equipment manufacturers, such as Vermeer, Doosan (Ingersoll-Rand), Kohler, Al-Jon, Bandit, Atlec and other, smaller OEM’s. Prendergast has been with John Deere for 18 years and in his current position for approximately 14 months.

Shan’s experience with the company is extensive. He began his career in Wichita, Kansas as a marketing representative, then moved to Colby, Kansas as a territory after-market manager.

“That’s the customer support, parts and service side of the business,” said Prendergast. “I moved back to Champaign-Urbana in the same capacity for about two-three years. From there I went to Joplin, Missouri as a territory manager, which is what we consider the sales side of the business.”

Prendergast moved to Iowa in March of 2000 and has held a variety of positions at the Waterloo Operations. He began as product manager for the 8000 Series tractor line, moved on to manager of information, training and services for John Deere Waterloo Works, and then was the division manager for utility tractors for North America before taking on his current position.

During our interview, Prendergast spoke at length about his experiences with the (then) Department of Agricultural Engineering.

“There were several individuals in the department that did a fantastic job of making students feel appreciated,” said Prendergast. “Phil Buriak, Paul Bensen and Bob Wolf treated all of us like we mattered.”

Prendergast was quick to note that did not mean the study was easy. “The pressure to learn the material was clearly your responsibility,” he said. “They definitely held us accountable. A test was a test, and you had to pass it like anybody else. But if you had questions, it was easy to go to one of these men and have your questions answered. They did everything they could to enhance your learning experience. They made sure we had every opportunity to succeed.”

Shan said the practical experiences that were offered outside the classroom were just as valuable. Prendergast was involved with the Ag Mech club, and served as the treasurer and the national president of the student chapter of the (then) American Society of Agricultural Engineers. He feels those opportunities provided him with resources he still uses today.

“Probably once a year, I call on a fellow ASABE member to get information they have that helps me in my work at Deere,” he stated. “Phil and Paul and Bob encouraged us to engage in industry, to get to know who our fellow partners were out there, to be able to leverage their knowledge and bounce ideas off of them.”

“I truly believe if I hadn’t taken advantage of those opportunities as a student,” he continued, “I wouldn’t be able to draw from those resources today.”

Prendergast is married and his wife Heather received a degree in English from the University of Illinois. She went on to obtain a law degree from the Western New England School of Law and is currently the managing partner at Robertson, Stevens and Prendergast, P.L.C. They have one son, Luke, who is eight years old and “a blast,” said Prendergast. Shan spends most of his spare time coaching Luke’s football and baseball teams.

Prendergast concluded, “I have the credentials you can only get at a world-class university, but I received the attention most people only get from a small college. It was tremendous. I was never just a number. I have Phil, Paul and Bob along with all the great University of Illinois Agricultural Engineering professors and staff to thank!”
Alums Join Department to Celebrate Banner Year

With 75 years under its belt, a national ranking in US News and World Report, and the ASABE ¼ Scale Tractor Design championship, the Department of Agricultural and Biological Engineering had much to celebrate at the second annual “Celebrate ABE@Illinois.”

The festivities were held September 25th and 26th on the University of Illinois Urbana-Champaign campus. More than 80 alumni, faculty, students and staff came together to toast the Department for 75 years of excellence in research, scholarship and service.

The weekend began with the fall meeting of the Central Illinois Section of the American Society of Agricultural and Biological Engineers (ASABE). The meeting was held in room 612 of the Institute for Genomic Biology and included presentations by Andrew Fulton, ASABE Student Club President, and Tyler Zoeller, Ag Mech Student Club President. Fulton spoke about the success of the Illini Pullers, winners of the 2009 ASABE International ¼ Scale Tractor Student Design Competition. He also noted that the ASABE student club will be hosting the 2010 Midwest Regional Rally in February. The membership voted to give the ASABE Student Club $500 in support of this rally.

After the meeting, the Department hosted a box lunch for Celebrate ABE@Illinois participants. Jim Steck, ’90 AgM, ABE’s “Professor for a Day,” gave a brief presentation on his position as president of Sloan Implement, the largest privately-owned John Deere dealership in the world. He then opened it up for questions, and interest was high among all the participants.

Some of the questions that Steck addressed included choosing and training people for management positions within the company; the challenges of managing 10 contiguous dealerships in Illinois; the decision to expand the company into Wisconsin; the challenges Steck faced personally moving from a position in corporate John Deere to a position in a private dealership; and the differences in marketing nationally and internationally.

Friday afternoon, participants enjoyed campus tours of The Cave, an immersive virtual environment; The Cube, an immersive, stereo-capable visualization chamber; and the new Business Instructional Facility (BIF) with the College of Business. More than 20 emeriti, alumni, faculty, and students attended these tours.

Shan Prendergast, ’91 AgM, a manager for John Deere in Waterloo, Iowa said, “I thoroughly enjoyed touring the Cube and the Cave. We have three virtual reality labs in our Waterloo operations, and when I was involved in some of our future product programs, we were using those labs to try and demonstrate to customers some of our products’ new features and evaluate their viability.

“Having those types of environments at a university level is an excellent opportunity for students to get engaged with what’s actually happening in industry,” Prendergast continued. “If they can learn now how they’re used and how to optimize them, when students come to industry they can hit the ground running.”

Above: ABE graduate student, Josh Sanders (on left) and alum, Scott Dixon give ABE staff member, Anne Marie Boone, pointers on driving a ¼ scale tractor during the tractor pulls on Saturday.
Internal tours of the research laboratories in AESB followed the campus tours. Alan Hansen, Luis Rodriguez, Tony Grift, Prasanta Kalita and Lance Schideman were some of the ABE professors available to speak with alumni and students about the many research projects currently in progress in the Department.

Friday evening, the festivities began at 5:30 with a social hour in the Lincoln Room of IHotel, where research posters were available for viewing.

At 7:00 p.m., the 75th Anniversary Banquet began in the Illinois Room. After the meal, K.C. Ting, Ph.D., ’80 AgE, Department Head, introduced Interim Dean of ACES Dr. Robert Hauser. Hauser welcomed everyone and congratulated the Department on 75 years of excellence.

Dr. Roscoe Pershing, Ph.D ’66 AgE, Department Head from 1985-1994, served as emcee for the evening. Pershing oversaw the introduction of all the faculty and participants attending the banquet. Interspersed between introductions, Pershing awarded a variety of prizes to the attendees. Howard Wakeland, MS ’54 AgE, was recognized as the emeritus with the most years of service, and James Curtis ’47 AgE was recognized as the alumnus who graduated longest ago.

On Saturday morning, students and alumni gathered at the ABE Farm to enjoy food, fellowship, and an exhibition tractor pull. Jordan Tate, a member of the Illini Pullers, was one of the students who attended the event.

“It was really nice to socialize with other students and faculty members in an informal setting,” said Tate. “We were pleased by the crowd that came to watch the exhibition pulls. In addition to the members, some alumni and a faculty member made a few pulls down the track.”

The weekend wound down at Jupiters at the Crossing, where several alumni, faculty and staff watched the Fighting Illini take on Ohio State.

“Our department has had much to celebrate this year,” Dr. Ting acknowledged, “and we enjoyed the privilege of celebrating with our students and our alumni.”
Students in the Department of Agricultural and Biological Engineering took advantage of a variety of opportunities for international travel and study in the summer of 2009. These study programs are offered jointly by IPENG (International Programs in Engineering) and ACES Study Abroad. Tours to China, Greece and South Africa were organized by three members of the ABE faculty.

**Renewable Energy Tour of China**

On May 18, Xinlei Wang, an associate professor in ABE, took seven students to Hangzhou City, China, where they met and worked with students from Zhejiang University to study the issue of energy and sustainability.

“We were on a very tight schedule,” said Wang, “so during the week we focused on two areas, project-based field trips and project involvement.”

Field trips included tours of the Tianhauingping Pump Storage Power Station, which has a 1.8 gigawatt production capacity; the Xin’anJian Hydroelectric Power Plant, the first in China, started in 1957; the Municipal Solid Waste Power Plant, where garbage is collected, mixed with 10% coal and burned to generate electricity; and the Eco-Building, located at the Shanghai Research Institute of Building Sciences. Some features of the Eco-Building include indoor vegetation for improved air quality, photovoltaic cells and solar thermal located on the roof and exterior walls, and automated shading.

Other trips included tours of a greenhouse facility and a solar thermal collection system.

The U of I students also worked on projects being conducted by the Chinese students for their capstone design projects, said Wang. Alan Mellovitz, Nathan Reed and Linda Zhang studied a solar assisted multi-functional heat pump system, and Chris Cirone, Doug Darling, Yi Cheng and Jenita Johnson worked on the design of an efficient refrigeration system which would best utilize compressed air energy storage.

Wang said they utilized the weekends to visit different tourist attractions. Highlights included a tour of Hangzhou City and visits to Thousand Island Lake, Putuoshan Beach, Shanghai and Yellow Mountain.

“Yellow Mountain is 2000 meters high and very beautiful, but very steep,” said Wang. “Some of the students wanted to see the sunrise from the top, so they got up at three in the morning and climbed to the peak.” Wang said on a scale from one to five, students rated most of the activities a five, but they gave a six to the trip to Yellow Mountain.

Wang will lead the tour again in 2010 and said it will include a week in Beijing.

**Greece “Cradle of Democracy Tour 2009”**

Steve Zahos, a lecturer for the Department of ABE and the senior capstone design course coordinator, took seven students to Greece for three weeks in July and August.

“We coordinated the tour with Dr. George Papadakis of the Agricultural University of Athens (AUA),” said Zahos. “His research focus is in the area of renewable energy, primarily bio-fuels, solar and wind energy, and systems of components to make micro-grids for providing power and desalinated sea water. He has Ph.D. students in all three areas, so this was an opportunity for them to interface with and teach students from another country.”

Zahos said each U of I student was presented with one of these three energy topics and asked to rank their interest level in each. They were...
“We ended up with a nice balance,” said Zahos. “Eric Stein, Cris Noble and Shikhank Sharma studied mini-grids, micro-grids and smart-grids. Sarah Sotiropoulos and Emmy Riley studied biofuels - combining diesel fuel and sunflower seed oil in differing concentrations and biomass pellets. Amy Balek and Brent Dirks focused on photovoltaic power and solar thermal energy storage.”

In addition to their studies at AUA, Zahos said the students spent a considerable amount of time going on educational and cultural excursions.

“We made an overnight trip to the University of Thessaly,” said Zahos. “One of their energy research projects studies the use of plant residue to make pellets that can be burned in wood pellet burning stoves. They don’t have a lot of scrap wood nearby, so they form these pellets out of waste agricultural material.”

Zahos said they also visited TERRA, the largest agricultural equipment manufacturers in Greece.

“TERRA is a distributor for Case-New Holland, but they also make planting equipment, some harvesting equipment and equipment for spraying olive trees.”

Another trip took them to the island of Kythnos. “This is where the European Union has established a photovoltaic hybrid system for a group of houses. The houses on this independent grid are fed by solar and wind energy,” said Zahos. “At times, they have actually powered the entire island off of photovoltaics and wind energy.” Zahos said their AUA host, Dr. Papadakis, also had a summer home on the island, so the students were able to swim on the beaches there.

Cultural excursions in Athens included trips to the Olympic Stadium, the Parthenon and the Acropolis. They also visited the islands of Crete and Santorini.

“Santorini is the island that has a dormant volcano off the coast,” said Zahos. “When you are high up on the island, you can see warm and cold water currents swirling because hot water is still being produced by the gases that are escaping from the volcano.”

Zahos will lead the tour again in 2010, and said some changes that are planned include having a “split squad” of students, with one group studying at the University of Thessaly and another at AUA. Possible excursions could include a foreign policy briefing at the US Embassy in Athens and a field trip to either John Deere in Germany or Case-New Holland in Italy.

South Africa Tour - Part 2

In August, Alan Hansen, a professor of agricultural and biological engineering, led a trip to South Africa with seven students from the College of ACES. [See U of I Students Work with South African Counterparts to Address Common Problems - Part 1 in the last issue of ABE@Illinois.] Hansen was asked to summarize the students’ time at the University of KwaZulu-Natal.

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http://abe.illinois.edu
In a county that is often characterized as "flat as a pancake," a dirt berm 300 feet long and 13 feet high definitely catches your eye as you drive onto the campus of the University of Illinois. The berm is located south of the campus on the research farm of the U of I Department of Agricultural and Biological Engineering (ABE).

This berm, and the area around it, will provide a multitude of research and training opportunities in erosion control and storm water management, said Prasanta Kalita, an agricultural engineer with ABE. Kalita is a co-investigator for the project, along with Niels Svendsen and Heidi Howard of the Construction Engineering Research Laboratory (CERL) of the US Army Corps of Engineers.

Kalita said they plan to test approximately 10-15 different varieties of grass that grow in Illinois (and elsewhere in the country) to study the different grasses’ effects on erosion control. The berm’s slope is three-to-one on the front side and two-to-one on the back side. There are three ditches at the base that drain into a small pond. Kalita said check dams will be placed on the ditches every few feet to learn how sediments are being trapped and transported through those ditches. Two of Kalita’s graduate students are designing a sprinkler irrigation system that will run the entire length of the berm. “That way,” said Kalita, “whenever we want to run tests, we can ‘rain’ on it.”

The research facility was funded by a $450,000 grant from the Illinois Department of Transportation (IDOT). Kalita said IDOT plans to use the facility to train their engineers and technicians to install effective erosion control practices and develop storm water management plans for use on Illinois’ roads and highways.

“Like everyone else,” said Kalita, “IDOT is required to comply with EPA regulations, and this facility will allow them to do the research and training they need to be compliant.”

CERL is the research arm of the Army Corps of Engineers, the Department of Defense organization responsible for investigating, developing and maintaining the nation’s water and related environmental resources. Svendsen said the DOD hopes to use the facility to test products and practices that can eventually be used on military installations around the country.

Originally the berm was designed to be 100 feet long and five feet high. But when another agency, the Illinois Land Improvement Contractors Association (ILICA), learned about the project, they were eager to contribute to its construction.

“ILICA came on board with an in-kind contribution of $50,000,” said Kalita, “although in terms of work contributed, the amount is much larger. It enabled us to more than double the size of the berm, and now ILICA will be able to schedule time to train their people here as well.”

Neal Barnes, an independent contractor and an ILICA board member, said “This facility will broaden our perspective on the impact of erosion. There are factors with erosion that you can’t anticipate, and I think a facility like this will enable everyone to have a better understanding of those factors.”

Barnes hopes to see more research on alternative materials that can be used for erosion control, such as turf reinforcement mats. “Right now there are materials used that are fairly common,” he said, “so we seem to think they should be used everywhere. I’d like to see research on material that’s more job specific.” Barnes said the opportunity to work directly with different materials (“kick the tires, so to speak,”) will be invaluable for everyone.

Construction of the berm was completed in August and Kalita hopes to allow the site to “settle” for several months before beginning any tests or demonstrations. He said they will use the winter months to develop teaching modules that can be used in training.

Finally, Kalita said the berm will be used to involve students in the research process. “Right now, our students are developing a boat for the pond that will enable us to study it from the water as well as from the banks.”

Kalita also hopes to get funding to convert a room in one of the on-site buildings into a classroom. “The companies and organizations who will use the berm to test products are potential employers for our students. It will be good for our students to interact with them in a real-world setting.”

Kalita concluded, “I love to do research, but I love the students too. For me, to be on a campus means to be involved with the students. With this facility, we can do it all.”
Members of the Department of Agricultural and Biological Engineering played an important role in the design and construction of the “Gable House,” the University of Illinois solar house that took second place in the 2009 Solar Decathlon international design competition sponsored by the U.S. Department of Energy.

The DOE hosts 20 college and university teams from around the world and challenges the students to design, build and operate the most attractive and energy-efficient solar home. The competition took place on the National Mall in Washington, D.C. from October 8th through October 18th.

Xinlei Wang, an associate professor in ABE, was the mechanical systems adviser for the 2009 competition. Mark Adams, a graduate student in ABE, was the student lead for all mechanical systems in the house, such as hot water, appliances, and heating, ventilation and cooling systems. Adams personally constructed the HVAC system from scratch.

When designing and constructing the home Adams said, “The team wanted to focus on simple design concepts and simple engineering. That’s not to say simple is easier. Many times it’s actually harder to take the simple approach. But we really wanted to stress conservation, reliability and cost-effectiveness.”

Adams said most people think of solar panels when they think of energy efficient homes. “Solar panels focus on generation and they are very expensive, so they don’t have the quickest payback. There are other, smaller systems that focus on conservation, such as the heat pump hot water heater we used in the house. It has a very quick payback. You can save a few hundred dollars every year, and the system only costs about $700, so there’s about a three-year payback on that alone.”

Adams said the home’s performance in the objective division of the contest proved how well all the systems worked. The competition includes tests in 10 categories. Five are objective (hot water, appliances, comfort zone, home entertainment and net metering) and five are subjective (architecture, market viability, engineering, lighting design and communications).

U of I dominated the objective division, taking first place in three of the categories (hot water, appliances and home entertainment) and second place in two of the categories (comfort zone and net metering).

“All our systems worked well,” said Adams. “They were very reliable and they proved our design intent.”

U of I also took second place in one of the subjective categories, lighting design.

The U of I team was in first place at one point in the competition, but Germany moved ahead when it received a perfect score (150 points) in the biggest category, net metering. Net metering measures a home’s energy use. The U of I Gable House used a 9-kilowatt solar energy system and produced four times the energy it needed, earning 137 points. But Germany’s house was covered in black solar panels. Using an 18-kilowatt system, it generated a surplus of power even during three days of rain.

Mark Taylor, architecture professor and project manager, said Illinois “just couldn’t beat a house wrapped in solar panels,” but team members pointed out on the team blog site that taking “second place in net metering with a PV array HALF the size of the winning team is truly impressive.”

Other features of the Gable House included 10 inches of high-performance insulation in the walls, roof and floor, laminated bamboo (a strong, renewable wood) used for structural elements, and high-efficiency lights and appliances.

Adams said many people who came through the house were impressed with its comfort. “It’s a little deceiving from the outside. It looks small. But once people came inside they thought it was large and very spacious. They could see themselves living in the house. That’s always a good thing to hear.”

Overall, the Gable House was the second most affordable structure in the competition. When the house returns to Champaign, it will be installed by a pond near I Hotel, with prairie landscaping around it.

“It will be interesting to see the final use of the house,” Adams concluded. “I’m just glad it’s coming back to campus to stay.”
K.C. Ting, Ph.D. ’80 AgE, Department Head of Agricultural and Biological Engineering, recently had the opportunity to represent the Department in a variety of international venues from Europe to Asia. Ting’s first trip was to the Island of Ischia (just off Naples, Italy) in mid-September, to address the Italian Society of Agricultural Engineering.

“I was invited to give a keynote presentation on the topic of transitioning from agricultural engineering to agricultural and biological engineering,” said Ting. “The Italian government is evaluating all the disciplines in education, and agricultural engineering is at a crossroads.

“Like everyone else in our discipline, they are moving into the area of biological systems engineering,” he continued. “This is a new area for them, and it’s exciting and impactful, but they know that in order to compete with other disciplines, they need to present themselves well.”

Ting had previously participated in a project funded by the U.S. Department of Education and the European Union that was designed to help EU countries define biological engineering and bio-systems engineering.

“My Italian counterpart in that project liked what I had to say, so he recommended me to the chairman of the Italian Society of Agricultural Engineering,” said Ting. “He felt they could learn from our experience, so my purpose in that presentation was to share with them how we made the transition.”

Ting’s second trip was to Berlin, Germany, to attend the Biofuels Conference - Transatlantic Dialogue from September 30 through October 1. The conference was co-sponsored by the German government and British Petroleum (BP). The University of Illinois is part of the Energy Biosciences Institute (EBI), a ten-year research collaboration with BP, the University of California at Berkeley and the Lawrence Berkeley National Laboratory.

“The EBI sent four speakers to Berlin - Chris Somerville, Stephen Long, Paul Willems and myself,” Ting said. “Somerville is the Director of EBI, Long is the Deputy Director and Willems is the Associate Director. Each of us spoke at one of the sessions at the conference. Steve Long and I were in the same session, “Raw Material Supply.” I spoke on biomass logistics for biofuels, and Steve gave a presentation on the breeding and cultivation of new energy crops.”

Ting said all of the speakers participated in panel discussions after their presentations and there were between 200 and 300 participants at the conference, including German researchers and government officials, BP managers, and employees from the U.S. Embassy in Berlin.

Ting’s final trip began on October 11, when he flew to Beijing, China, to attend the
Joint International Agricultural Conference. “I was one of the four co-chairs of this meeting,” said Ting, “and the title of my presentation was “Intelligence Empowered Agriculture.”

Ting said there were more than 300 participants at the conference, including a faculty member and two graduate students from ABE.

While in Beijing, Ting went to China Agriculture University, to discuss potential collaborations and give two presentations.

“The title of my first talk was “Bio-Energy: Fuel for Competitiveness and Sustainability,” he said. “My second topic was a discussion of the research and teaching activities in our department here at Illinois.”

Ting also gave a presentation on ABE to Beijing Aerospace University, and then went to the China National Engineering Research Center for Information Technology in Agriculture, where he gave a seminar titled “Perspectives on Viability of Agricultural Robotics.”

From Beijing, Ting traveled to Hangzhou City, the home of Zhejiang University (ZJU), where Ting is an honorary guest professor. In 1998, Ting co-authored a textbook, “Robotics for Bio-Production Systems” with Dr. Naoshi Kondo. Zhejiang University began using the textbook in 2003, in a course of the same name.

“One of the major reasons for our time at ZJU was to discuss and formalize a joint research agreement between ZJU and UIUC,” said Ting. “So after the symposium, we met with the president of ZJU, and Interim Provost Robert Easter [former Dean of the College of ACES] flew in to meet with us as well.

“After that, ZJU hosted a dinner to honor the Provost,” Ting continued, “and then we actually had a small Illinois alumni and friends gathering. The next morning I participated in the signing ceremony of the agreement, before returning to the States.”

Ting will be staying closer to home in the next few months, traveling to Washington, D.C., and Lexington, Kentucky in early 2010.

“One of the major reasons for our time at ZJU was to discuss and formalize a joint research agreement between ZJU and UIUC.”

— K.C. Ting
Although the ratio of women to men in engineering is low compared to other fields, women engineers – on campus and in society - are no longer an anomaly. But female students still find themselves in the minority in their engineering classes, said Jaclyn Burke, a freshman in Agricultural and Biological Engineering (ABE).

“We had to divide into lab groups in GE 101 the other day, and it was 11 guys, the professor and me,” said Burke. “The other girl was sick.”

So Jaclyn is taking advantage of a mentoring class for women in engineering at the University of Illinois. The class offers first-year students the opportunity to meet and be mentored by older female students in their department, as well as attend presentations on professional and leadership skills given by speakers from industry and academia. There are nine women from the Department of ABE in the course this semester; four are mentors and five are mentees.

“It's an opportunity for us to share our experiences with the younger girls,” said Anna Oldani, a sophomore in ABE and one of the mentors for the class. “We can answer their questions about classes we've already taken, or we can talk about scheduling and what to do, or not to do.”

“It also means there's usually a familiar face when we go to classes or meetings,” said Jessica Williams, an ABE freshman. “It's a big campus and it's hard to meet people sometimes, so getting to know other girls in the department really helps.”

“There's a lot of benefit for everyone,” said Mickey Trimble, a senior in ABE. “We get to hear professionals in our field speak about practical issues. We each take away something different, and some of the presentations are more helpful than others, but they're all pretty interesting.”

Some of the issues addressed in the formal presentations include opportunities for internships, personal finance, interviewing skills, and personality in the workplace and how it affects working habits. These presentations are offered every other week and are given to the entire class.

The mentors and mentees are required to meet informally at least three times during the course of the semester. These meetings take place during the off weeks and can be as simple as having lunch or going to a sporting event together.

“We're also required to meet several times in a more professional setting,” said Trimble. “Our group has attended an ASABE meeting, we went to the Engineering EXPO together, and we went to dinner with one of our professors, Dr. Danao.” Grace Danao was the first female professor hired in the Department of ABE.

Although students are encouraged to meet in pairs, the women in ABE prefer to meet as a group. “We each have one or two freshmen that we're responsible for, but our group is so small we like to take advantage of it,” said Trimble.

When asked if women in engineering today experience any discrimination, the students agreed that what little discrimination they see is relatively mild. “There have been times that I know guys in my classes have not regarded my opinion as highly as others, just because I’m a girl,” said Trimble.

Oldani agreed, saying, “The guys in my physics class would never listen to me. They’d tell me I was wrong, no matter what we were talking about. Then the TA would come over and look at my work and say, ‘No, she did it right.’”

“But for the most part,” Oldani continued, “it's just not acceptable any more. We’ve been around a while, you know? I think most people have come to terms with the fact that we can do the work.”

In fact, most of the women agreed that the pendulum has swung the other direction.

“The existence of this class is a good example,” said Oldani. “We have an entire class specifically geared to women helping women. I’m pretty sure there’s not a ‘man mentoring’ class.”

Trimble noted that although finding a job in the current economy was going to be tough for everyone, the search might be a bit easier for a woman in the field.

“You still have to have the grades,” Oldani was quick to add. “You still have to be qualified. If you’re not, it’s not going to happen, regardless. But if you are qualified, you probably have an edge over an equally qualified male.”

Shilpa Beesabathuni, a graduate student in ABE, summed it up best. “Success depends on the individual,” she said. “If you are assertive, if you go forward and take initiative, people are going to listen to you, and you will succeed.”
Bode Easing Into Retirement  
*continued from page 3*

Now that he is settling into retirement, Bode finds he has more time to golf, a favorite past time. And he’s also discovered reading – for personal pleasure. “Oh, I read all the time before,” he said, “but it was always professional material. Now I’m reading more fiction, and I really enjoy it.”

Bode said he and his wife Linda plan to travel more as well. “We’re going to spend two or two-and-a-half months in Florida this winter, and we’re planning a vacation to Africa or Australia, we haven’t decided yet.”

Bode is also involved in Rotary and his church, but he concluded, “I’m not rushing into a lot of activity. I’ve actually found it somewhat peaceful not to fill in all the hours.”

Whitlock Leads O’Hare Modernization Program  
*continued from page 4*

The professors in the department were also very supportive. Whitlock said her advisor, Ben Jones, Ph.D., ’58 CE, was always ready to go to bat for her. She once had a particularly bad experience in an interview on campus. “When I told Ben what had happened, he said ‘Do you want me to have [this person] kicked off campus?’

“That was all I needed,” she said. “As soon as he said that, I knew he understood that kind of thing shouldn’t happen. When I realized I had the support of my department, I knew I didn’t have a problem. The other person had the problem.”

After 39 years in the field of engineering, Whitlock has a storehouse of practical advice for engineering students today.

“Find a good contact management software program, and keep track of everyone you meet,” she said. “That list becomes an invaluable tool. If you need help, there will probably be someone on that list who can help you. So call them up and ask them to help you. Most young people don’t realize what a positive statement that is.”

Most importantly, said Whitlock, “Don’t be afraid to do the things you want to do in your career. As long as you’re learning, you will find an application where the knowledge will be beneficial. I did many things early in my career that didn’t seem to relate to each other,” she said. “I always liked a new challenge, so I often volunteered for jobs that other people didn’t want.

“Then I went to DuPage County to put together their first stormwater plan. At that moment,” she concluded, “I realized that every crazy thing I had done in the past 18 years was all preparation for doing that job.”
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