SOUTHERN ILLINOIS UNIVERSITY EDWARDSVILLE
SCHOOL OF ENGINEERING

eNNOVATION

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Message from the Dean

Engineers, computer scientists and construction managers shape the world around us. The impact they make on infrastructure and technology is clear. However, what many people don't realize is the constant determination of these professionals to improve the world around us. Whether it is designing a medical tool to analyze heavy metal content in blood, developing solar energy technology, or participating in an international humanitarian service project, the students, faculty and alumni of the School of Engineering strive to make a difference in the world everyday.

In my fifth year as Dean of the SIUE School of Engineering, I am proud to be a part of an academic program which not only educates innovative and highly capable engineers, but also affords our students the opportunity to learn on a global scale. In fact, Duygu Sagiroglu, one of the first graduates of the industrial engineering dual diploma program with Istanbul Technical University, was chosen to represent her class and the University as speaker at the spring 2011 commencement ceremony.

Engineering faculty continue to collaborate with international institutions of higher education. One example is the partnership being formed with the mechanical engineering department and Henan University of Science and Technology in China.

Not only are faculty members reaching out to expand the educational experience abroad, they are also being honored for excellence in the classroom. Dr. Ryan Fries was recognized by prestigious national civil engineering organizations, and Dr. Brad Noble was the recipient of the 2011 SIUE Alumni Association Great Teacher Award

Our faculty members are also hard at work, securing substantial external research grant funds. The latest good news came from Drs. Gary Mayer and Chris Gordon.

As always, our student teams achieved success in regional and national competitions. Their determination and ingenuity continue to be rewarded. They are the best representation of the excellence of the School.

As we embarked on another productive fall semester, I invite our alumni, friends, students, faculty, and staff to continue adding value to the School in its drive for excellence in engineering education.

Best wishes,

Hasan Sevim, Dean

Upcoming Events

- October 3-8, 2011: SIUE Homecoming
- October 7, 2011: Alumni Hall of Fame Banquet (Meridian Ballroom, Morris University Center)
- October 8, 2011: Annual Chili Cook-off , Alumni Association Hospitality Tent, Men's Soccer vs. Evansville, Homecoming Concert Featuring Three Dog Night

Distinguished Alumnus Gives Keynote Address at Fifth Annual Awards Banquet

Mr. Edward C. Grady, 1972 BS

Ed Grady, a 1972 graduate of Civil Engineering, served as the Keynote Speaker of the Fifth Annual School of Engineering Awards Banquet.

Mr. Grady and his wife, Karen, traveled from their home in Los Altos, California to address the faculty, staff, students, alumni, and friends of the School of Engineering on one of the most special evenings of the year.

Lifelong learning, respect, hard work, and results were the focus of Mr. Grady's address. He reminisced about SIUE in the early 1970's and remarked on its progress since then. The highly regarded speech was marked by "Lessons Learned," a listing of advice that all guests could relate to. "QTR," was the point that resonated the most amongst the guests, in which Mr. Grady encouraged everyone in attendance to take full advantage of "Quality Time Remaining."

In the days following the Banquet, Mr. Grady spoke to student groups, toured the Engineering Building and SIUE campus, and met individually with students. In addition to the degree from SIUE, Mr. Grady also holds an MBA from the University of Houston and an Executive MBA from Stanford University.

Mr. Grady's impressive career began in the City of East Saint Louis as the City Engineer and Director of Public Works. This first position was filled with responsibility and diverse projects, one of which included the sale of the City's sewage to Monsanto to treat the effluent from its local plants biologically rather than chemically. This innovative solution led to a job offer from Monsanto and a 14-year career that evolved from Project Engineer to Vice President of Worldwide Sales.

From Monsanto, Mr. Grady moved to Silicon Valley where he successfully led Hoya Micro Mask and KLA-Tencor to billions in growth before retiring in 2000. In 2003, Mr. Grady was recruited to Brooks Automation as CEO and retired in 2007 as President.

Mr. Grady is currently Chairman and Chief Executive Officer of REEL Solar, an early stage company that has developed a unique low-cost technology to produce solar panels. His expertise in the solar energy field extends far beyond his current position at REEL Solar, as he also serves in various leadership capacities at a myriad of energy companies as well. "My wife says I have flunked retirement twice," he jokes.

After Mr. Grady's address, the SIUE School of Engineering honored its most outstanding juniors, seniors, graduate students, alumni and teachers from each department. Two faculty members, Dr. Sohyung Cho and Dr. Huagao Zhou, were also recognized for remarkable research.

Drs. Zhou and Cho

Approximately 300 School of Engineering students, faculty, staff, alumni and friends attended, and throughout the evening Group Anatolia provided attendees with a beautiful mix of Turkish folk music.

Hasan Sevim, Dean of the School, commented, "I am thrilled to see this banquet becoming a tradition for the School with the support of all our constituencies. It helps bond all of us around our School's mission to become the center for excellence in engineering education in this region."

Capital Campaign Kickoff

Student Aaron Parker and Alumnus Hal Gentry at the Kickoff Event

The University commenced the public phase of its $50 million Capital Campaign at an event attended by alumni and friends on March 19th, 2011. "Defining Excellence: The Campaign for SIUE" is the first of its kind in University history. The evening featured addresses from Chancellor Vaughn Vandegrift, SIU President Glen Poshard, and Campaign leadership. The Campaign, which has raised over $29 million to date, will provide vital resources to the University in the midst of a 20% decline in state funding over the past decade. As part of the Campaign, the School of Engineering aims to raise $2 million for student scholarships, $1 million for student project support and $1 million to equip the School of Engineering Building extension.

According to School of Engineering Director of Development, Karen Wicks, "Private support is essential to the success of our programs and our students. Scholarships are needed to attract and retain the best and brightest students to our programs. Contributions by our alumni and friends will allow our students to concentrate their time and resources on academics and student projects. Our Building Extension, which is slated to be complete in fall 2013, will provide both students and faculty with additional classrooms, labs and state-of-the-art equipment for learning and research."

For more information about the Campaign or giving opportunities, please contact Karen Wicks at kwicks@siue.edu.

School of Engineering Student Shines at Commencement

Sagiroglu speaking at Commencement

Senior Industrial Engineering major, Duygu Sagiroglu, has always stood out during her time at SIUE. Duygu is among the first cohort of four students graduating from the SIUE – Istanbul Technical University (ITU) Dual Diploma Program (DDP.) As part of the program, Turkish students spend their freshman and junior years at ITU and their sophomore and senior years at SIUE, earning degrees from both institutions.

Because of her academic excellence and unique background, Duygu was chosen by the University to be the SIUE Spring 2011 Commencement speaker. According to SIUE DDP Director Dr. S. Cem Karacal, Duygu is a valuable addition to the industrial engineering program along with the other DDP students. "They have elevated the level of education in the department and help promote the program among their Turkish classmates. Duygu speaks very highly of our program, which helps us recruit more students."

Duygu not only addressed her fellow graduates and their families and friends , but also a delegation of distinguished guests from ITU. Dr. Muhammed Sahin, President of ITU, Dr. Mehmet Mutllu Yenisey, associate professor of industrial engineering and Director of the DDP at ITU, and Ms. Defne Korur, Director of the ITU International Office, visited the SIUE campus and proudly attended the commencement activities.

Duygu's parting words for her fellow classmates were as follows: "Today is one of the most important days of our lives, so enjoy it. Be aware of the fact that tomorrow will bring a new challenge. Don't be afraid of it. Instead, embrace the challenge. Look at the world with more careful eyes and take advantage of opportunities. Don't stay in your hometowns the whole time, but expand your horizons. Go to new places, experience other cultures, meet new people and give back to your societies. And, above all, try to get the most out of the world as you can."

Duygu is taking her own advice and further seizing important opportunities. She is attending Duke University to obtain her Master's in engineering management.

SIUE School of Engineering Partners With University In China

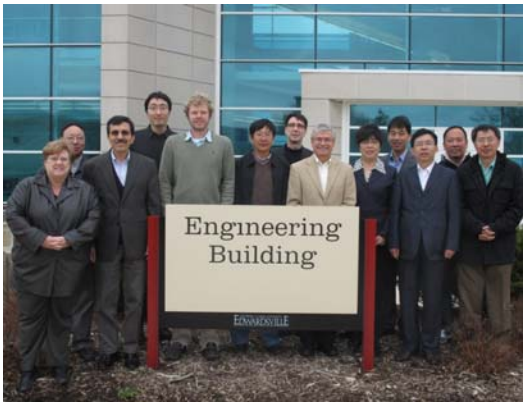
As a campus leader of internationalization efforts, the SIUE School of Engineering places vital importance on the formation of partnerships with outside universities, including those abroad. In March, the School hosted guests from Henan University of Science and Technology (HUST) in Luoyang, China.

The HUST delegates are working to gain firsthand knowledge of the cutting-edge engineering research and activities in the United States. SIUE mechanical engineering faculty and doctoral students helped the visitors in their pursuit by delivering several research presentations.

Along with gaining engineering insight, HUST delegates and SIUE engineering faculty also discussed their new partnership, which will permit graduate students the opportunity to study one year at HUST and one year in the SIUE School of Engineering to receive a master of science in Mechanical Engineering. Once officially approved, this partnership will be the first of its kind for graduate-level students at SIUE.

Keqin Gu, professor and chair of the SIUE Department of Mechanical Engineering, said, "A range of other possible cooperative activities with Henan University of Science and Technology have been discussed."

In 2008, Gu took several students to HUST for a study-abroad program. HUST is situated in the ancient capital of the nine dynasties of Chinese history. The university is known for strong engineering programs that have close connections to the significant industrial base in that region.



HUST Delegation with Dean Sevim and Mechanical Engineering Faculty and Staff

Faculty Members Recognized for Outstanding Teaching

Dr. Ryan Fries

For Ryan Fries, assistant professor of civil engineering at SIUE, excellence in instructing his students is the standard. His remarkable teaching has been recognized and awarded multiple times in the 2010-2011 academic year. In June 2011, Fries accepted the prestigious national New Faculty Excellence in Teaching Award from the American Society of Civil Engineers (ASCE.)

In addition to this notable distinction, Fries was also recently named the recipient of the 2011 Central District Excellence in Teaching Award from Chi Epsilon, the National Civil Engineering Honor Society.

Susan Morgan, professor of civil engineering and chair of that department, praised Fries' accomplishments. "He is well-deserving of these awards," said Morgan. "The SIUE Department of Civil Engineering hired Ryan expecting him to be an excellent teacher and colleague, and he has lived up to our expectations." Fries, an expert in transportation systems and safety, joined the School of Engineering in fall 2008.

Fries also serves as the Scholarship Committee Chair for the Department of Civil Engineering and teaches the senior design course.

Dr. Brad Noble

Dr. Brad Noble, associate professor in electrical and computer engineering, was the recipient of the 2011 SIUE Alumni Association Great Teacher Award.

Dr. Noble was nominated by several of his students and chosen by a panel because of his continued commitment to teaching. The Great Teacher Award is accompanied by a $1,000 cash award and a plaque which will be displayed in the lobby of Birger Hall. The award was presented to Noble at the summer 2011 Commencement Ceremony. Noble also attended a breakfast in his honor hosted by the Alumni Association and will be featured in the next eConnection, the Alumni Association magazine.

Noble has not only excelled in teaching, but also applied research. In cooperation with Edward Navarre, assistant professor in the chemistry department, Noble has developed a portable electrothermal analyzer which tests for heavy metals in blood. The innovation was featured in a St. Louis Post Dispatch article in November of 2010.

Noble is also the 2007 SIUE Teaching Excellence Award winner.

Personnel Changes in School of Engineering

Dr. S. Cem Karacal

Dr. S. Cem Karacal was appointed as the Associate Dean of the School of Engineering in summer 2010. Dr. Karacal is a professor in the industrial and manufacturing engineering program and the Director of both the Ph.D. and ITU Dual Diploma Programs.

According to Dean Hasan Sevim, "Dr. Karacal is an experienced administrator with excellent interpersonal skills. He has been a valued addition to the Dean's Office and has brought synergy to our team."

Alpona Simmons

Alpona Simmons is the newest addition to Engineering Student Services, the School of Engineering advisement office. Alpona comes to us from the Registrar's office at SIUE, and brings several years of experience. She joined Engineering Student Services on July 1st and has been a great addition to the student services team.

Karen Wicks

Karen Wicks took over the Director of Development position in fall 2011. Karen has fourteen years' development experience, having served as Director of Development at Arizona State University, Southeast Missouri State University, University of Missouri-St. Louis, and as Assistant Director at Washington State University. She is excited to be at the School of Engineering and looks forward to securing funds for the School.

School of Engineering Faculty Receive Significant Grants

The National Science Foundation recently awarded a major research instrumentation grant to a cross-campus collaboration at SIUE. The award of $100,000 enables the research team to acquire a cutting edge laser scanner and advanced modeling software. This acquisition will allow the researches to create three dimensional models of the built and natural environment to investigate ways to work across disciplines to best sustain our cultural, physical, and biological resources. The instrument will be a valuable tool in the fields of construction, biology, and archeology research. Led by Chris Gordon, Assistant Professor and Chair of the Department of Construction, the team also includes faculty from Anthropology, Biological Science, and Computer Science.

Dr. Chris Gordon

A team of researchers headed by Dr. Gary Mayer of SIUE's School of Engineering's Computer Science Department have been awarded a $500,000 National Science Foundation grant to study the effectiveness of mentoring to increase middle school student's interest and success in pursuing science, technology, engineering or mathematics careers. University of Southern California will be partnering with SIUE, receiving an equal amount of grant from NSF for their effort. The focus of the research will be the use of robotics. About fifty Middle school teachers from southern Illinois and southern California will be prepared as mentors for the robotics teams, and about 500 students from diverse backgrounds coached by these mentors will be studied to measure the effectiveness of the robotics in attracting the young minds in to STEM fields.

Dr. Gary Mayer

Construction Department Adds High-Tech Tools to Its Toolbox

The Department of Construction in the School of Engineering was recently awarded a donation from the Southern Illinois Construction Advancement Program (SICAP) to acquire high-tech tools to add to the Department's education and research toolbox. The $25,500 gift will be used to acquire a heavy equipment simulator and a thermal camera.

Dr. Chris Gordon, Chair of the Department, notes, "SICAP has assisted us at several formative points in our department's history by helping us launch new programs, such as the Construction Leadership Institute and Land Surveying Specialization, and by supporting our top-notch faculty team with leading edge equipment. SICAP's generous support helps us sustain our department's strength in technology-supported education and research. Our students' successes are at the highest level to date, and we continue to provide an excellent learning environment, thanks to support from our industry."

SICAP was founded in 1992 to support the advancement of the construction industry through safety, education, and economic development programs. Several area construction companies are contributing members of this not-for-profit organization.

School of Engineering, Center for Robotics Education in Region

The School of Engineering once again hosted the St. Louis Region Botball Robotics competition in April. Each year, middle and high school Botball teams and mentors attend a two-day educational workshop on campus facilitated by computer science professionals. Each team spends months building and programming autonomous robots to navigate a standard game board, collect and distribute unique items, and compete head-to-head against other robots.

The competition is geared toward providing students with an exciting and educational experience which hopes to spark their interest in STEM-related disciplines. They are also required to enhance their communication skills, as they work as a team and present a paper which documents the design and build process.

This year, seventeen teams from four states participated. Wolfbranch Middle School in Belleville took top honors this year as first-year participants. Another local team, the East St. Louis Charter School, performed wonderfully as well, achieving third place overall. The team was mentored by members of the SIUE student chapter of the National Society of Black Engineers (NSBE.)

In addition to Botball activities, students and faculty in the Department of Computer Science partnered with the Edwardsville High School (EHS) Robotics Team to put on a "Robot Carnival" for twenty-four elementary school children, ranging from third through fifth grades. This is the seventh year that SIUE and EHS have teamed up to pique young students' interest in robotics and engineering.

Summer Outreach Program

Summer Outreach Program Activity

In June, the School of Engineering hosted two sessions of its annual Summer Outreach Program. The week long residential camp introduced fifty high school freshmen, sophomores, and juniors to various disciplines in engineering, computer science, and construction management.

The students were also introduced to a taste of college life by staying in an SIUE residence hall, taking meals at the Morris University Center, and enjoying recreational activities all over campus—including painting the campus Rock.

According to Associate Dean Cem Karacal, director of the camp program, "The main purpose for conducting the camps is to excite these young people about engineering and technology and encourage them to consider the field as a possible career choice."

Enthusiastic campers enjoy the college experience.

Students participated in activities such as building robots and a solar car, designing and racing hovercraft, and were treated to a lunchtime talk with Alumna and Boeing Company employee, Tyria Riley.

Above: Land Surveying Activity

Below: Gumdrop Bridge

Below: ERTC Tour

Above: Solar Car Activity

Student Competition Success

2011 ASCE Steel Bridge Team

The SIUE American Society of Civil Engineers (ASCE) Student Chapter competed at the 2011 ASCE Midcontinent Regional Conference in April, hosted by Kansas State University. The Steel Bridge team came home with three awards, placing 1st in Display and Aesthetics categories, and 3rd for Stiffness. The Concrete Canoe team placed 4th at the regional competition, but won several awards as well— 1st place for Men's and Women's Sprint races, 2nd place for Co-ed, Women's Endurance and Men's Endurance races, and 3rd place for Design Paper. Junior Civil Engineering major, Jessica Eichhorst, won 1st place overall for her technical paper, "Ethics and the ASCE Report Card for America's Infrastructure". The SIUE team also received the 2nd place award for the Mystery Event (making a balloon boat that had to travel a certain distance and hold a load).

2011 Cougar Baja Team

At Pittsburg State University, 105 national and international teams participated in the Baja SAE Kansas competition. The Cougar Baja team placed 4th in the Sled Pull, 24th in the Suspension and Traction event, and 49th in the Endurance Race, achieving 42nd place overall.

A team of engineering students in the Industrial and Manufacturing Engineering department achieved second place with their design of an adjustable-blade ceiling fan in the 2011 Society of Manufacturing Engineers Design for Direct Digital Manufacturing competition .

The SIUE student chapter of the American Concrete Institute (ACI) made a solid finish in the recent International Fiber Reinforced Polymer Composites Competition, placing 4th of thirty-one teams .

Engineers Without Borders Visits Honduras for the Fourth Time

In August, SIUE's student chapter of Engineers Without Borders (EWB-SIUE) partnered with members of the Gateway Professional Partners Chapter (EWB-GPPC) and the newly formed student chapter at SIUC (EWB-SIUC) to construct a bridge culvert and roadway in Pimienta, Honduras. The bridge culvert replaces a bridge and roadway that was destroyed by Hurricane Mitch in 1998. This project served as the Senior Design for three SIUE civil engineering students, with mentorship provided by Kaskaskia Engineering Group. The final design consisted of a 55' long, 60" diameter, double barreled, reinforced concrete pipe (RCP) bridge culvert and roadway.

Before and After (right)

These projects are challenging from an engineering standpoint. The past two projects have required enough time and expertise for three senior design projects each. Part of the technical challenge is designing for the construction methods and materials that are available in this community.

-Chris Gordon, EWB-SIUE Advisor

Coordination and planning were essential to the success of the project. With funds provided by all three chapters of EWB, a civil engineer from nearby San Pedro Sula was hired to do the rough excavation and grading of the channel prior to the arrival of the implementation team. This allowed the team to immediately begin construction. The approximately $20,000 project was completed in just seven days.

This is the fourth trip to Honduras for the EWB-SIUE chapter. Pimienta, a municipality of the Cortes department in Honduras, is a small town of less than 9,000 people, and within Pimienta is a neighborhood called the Casitas, which houses some of the city's most impoverished residents. Its initial construction lacked basic infrastructure, which makes life difficult, and in some cases, dangerous, for its residents.

According to the EWB-GPPC website, the initial assessment found the "lack of site drainage, sewage systems, electricity, water supply, and essential housing features such as bathrooms and pilas made the housing development almost unlivable."

EWB's faculty advisor Chris Gordon, assistant professor of Construction and chair of the department, notes: "The EWB-SIUE chapter, under President Damien Di Vittorio's leadership, continues to raise the bar in capability and impact. We are grateful for the administrative, academic, community, and corporate support that helped make this ambitious project a reality."

A week after the completion of the bridge project, a tropical storm hit Honduras. The mayor of Pimienta has reported that the culvert performed as designed during the storm and the community is very grateful to have their access road restored after so many years.

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Educating tomorrow's engineers, computer scientists, and construction managers today.

The mission of the School of Engineering is to provide excellent innovative engineering, computer science, and construction education to citizens of Illinois, the greater St. Louis metropolitan area, and representatives of the global community. The School focuses on strong undergraduate education and graduate programs that serve the needs of full-time students and employed professionals. The faculty conduct basic and applied research and outreach activities in partnership with others that contribute to technological advancement in our fields.

Senior Design Project Pays Off

Brian Derrow, Corey Akers and Taylor Hook

Brian Derrow, Corey Akers and Taylor Hook had a vision to connect gym users with the world through virtual reality. The computer and electrical engineering majors used their innovative idea, DuelEX, to open the door to entrepreneurship.

"We built a kit that connects to any stationary bicycle, elliptical or treadmill, and it will control anywhere you go in Google Earth," Akers said. "The idea behind this is that you can go anywhere in the world and ride. If I want to go to the Great Wall of China today or ride the Grand Canyon, all you do is push the button, and you're there. And, it doesn't even feel like you're exercising. You get a scenic tour – exploring new places.

In concept, the user, who could be located in snowy Illinois, has the ability to ride by the Statue of Liberty with stunning satellite imagery and 3D buildings."

Subsequent to their senior design presentation, the team entered "The Other 40," a competition sponsored by the SIUE School of Business and the Collegiate Entrepreneur's Organization and won second place. Their award included a cash prize of $2,500 and professional assistance to bring their product to market.

The team has formed a company, Endless Horizon, and plans to market DuelEX to gym facilities across the country. They hope to patent their product soon and are currently working on a marketing strategy, product improvement, and securing investments. They plan to have ten to twenty market-ready units to sell within the coming months.

"We're pretty excited to take this to the next level," Derrow said.