

Engineering Vision



Engineering Vision

A message from the Dean



Four years ago, I wrote to you for the first time as the new Dean of the School of Engineering. Today, I am the proud Dean of a School that has strived to distinguish itself as a center of excellence in engineering education in the region. We created a vision for the School to form an “engineering community” with the participation of area high schools, community colleges and companies along with our alumni, students, faculty, staff and advisory board members. This integrated community is now fully functional and continues to improve the quality of education, research and service provided through the School and University.

Every measurable indicator has increased annually since 2006, and 2010 has been particularly exceptional. We have achieved historically high records in enrollment, scholarly publications, externally funded research and incoming freshmen ACT scores. The continuous growth in enrollment and faculty since 2006 has caused some growing pains—the award-winning Engineering Building, constructed in 2000, has reached capacity. The good news is that a 32,000-square-foot annex is being designed and is scheduled for completion as early as 2013.

We continue to add an international dimension to the School. The number of students enrolled in the industrial engineering dual-diploma program between SIUE and Istanbul Technical University, a world renowned institution, has reached 38. I am proud to report that more than half of the SIUE international student population is enrolled in an engineering degree program.

The cooperative engineering science doctoral program, industrial engineering master’s program and surveying specialization have been thriving since their inceptions.

Student success is paramount to the foundation of our “engineering community.” The student design teams and student chapters continue to excel in collegiate contests, bringing regional, national and international

recognition to SIUE. Several student chapters serve international and local communities while gaining invaluable experience for their future employment.

The School of Engineering needs your help in order to continue providing support to our students and facilities. Annual and endowed scholarship funding will be vital in order to recruit the highest quality students to the School. Financial support of our students does not end with scholarships. Funding for our student teams and organizations will enable them to focus solely on their projects without spending precious time on fundraising. The Engineering Building annex will also necessitate funds to outfit the classrooms and labs with state-of-the-art equipment.

Your support will allow the School to remain competitive with the best engineering schools in the area, which will elevate the value of an engineering degree from SIUE for both students and alumni. Please consider actively participating in the growth of our exceptional school.

Sincerely,

A handwritten signature in black ink that reads "Hasan Sevim". The signature is written in a cursive style.

Hasan Sevim, Ph.D.
Dean and Professor



On the Cover
Construction of a 32,000-square-foot Engineering Building addition is expected to begin as early as fall 2011, providing additional classrooms and laboratories and much needed office space.

Our Vision

The vision of the SIUE School of Engineering is to be a partnership of faculty, students, staff, alumni and other professionals who work together to provide the highest quality education and maintain innovative resources that support the technical growth and economic development of the region.

Engineering Impact on the Region

A message from the Chancellor



At SIUE, we believe in saying, “Yes.” Yes to academic excellence. Yes to improving our region. Yes to doing the right things and doing them well.

U.S. News & World Report’s America’s Best Colleges 2011 edition recognizes SIUE for numerous achievements. The University is cited as one of 68 “up-and-coming” schools for the second consecutive year and listed for its outstanding Senior Assignment

program for the sixth consecutive year. *U.S. News* ranks the SIUE School of Engineering as one of the top 100 Best Undergraduate Engineering Programs among the non-doctoral degree granting institutions in the country. *Washington Monthly* ranks SIUE among the nation’s Top 50 master’s granting universities for our contributions to the public good. We are particularly pleased to be one of only 14 public universities across the United States on the list.

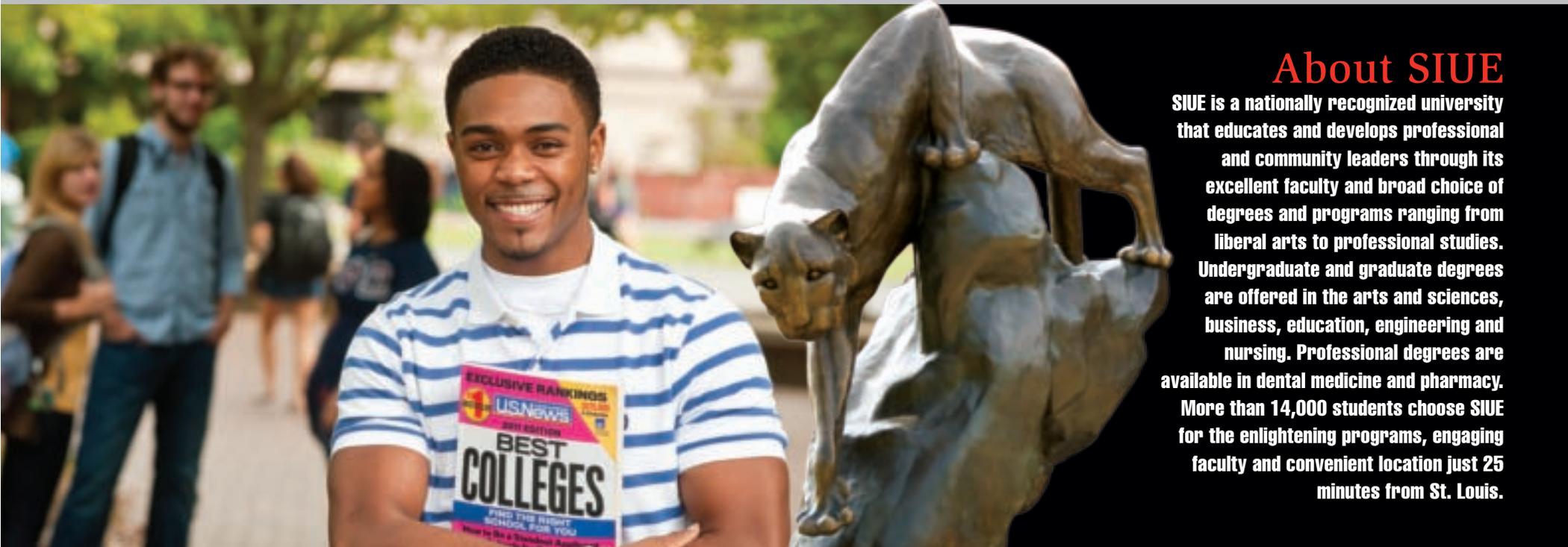
SIUE has launched its first ever capital campaign that will enhance the scholarship offerings at the University as well as support the academic programming for which SIUE is gaining increasing national recognition. **Defining Excellence – The Campaign for SIUE** was announced officially on March 19, 2011. Private support is needed to help SIUE expand on the incredible impact it has had on Southwestern Illinois over the past 54 years.

Two campaign priorities have been identified for the School of Engineering—endowed scholarships and

support for student projects. Endowed scholarship support is an essential resource for use in recruiting deserving students who wish to pursue careers in engineering, computer science and construction. Support for student projects will provide valuable hands-on learning experiences and a competitive edge as students enter the workforce.

The School of Engineering is committed to graduating entrepreneurial engineers who are passionate about improving people’s lives and fueling the prosperity of the region. Please join us in ensuring that the SIUE School of Engineering continues to have a positive impact on the region for years to come.

Vaughn Vandegrift, Ph.D.
SIUE Chancellor



About SIUE

SIUE is a nationally recognized university that educates and develops professional and community leaders through its excellent faculty and broad choice of degrees and programs ranging from liberal arts to professional studies. Undergraduate and graduate degrees are offered in the arts and sciences, business, education, engineering and nursing. Professional degrees are available in dental medicine and pharmacy. More than 14,000 students choose SIUE for the enlightening programs, engaging faculty and convenient location just 25 minutes from St. Louis.

Achieving Academic Excellence

About the School

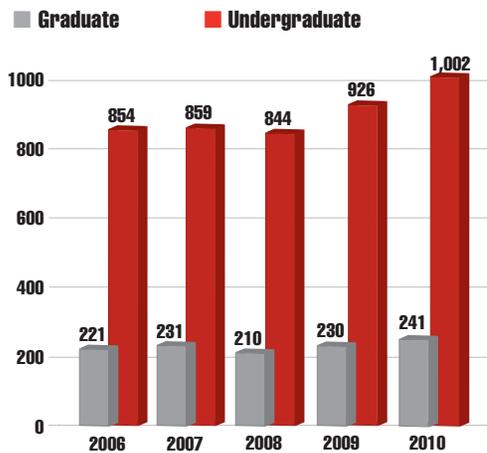
The SIUE School of Engineering had an exceptionally successful 2009-10 academic year, reaching landmark numbers in the areas of enrollment, incoming student test scores, external funding and faculty publications.

“The School of Engineering community continues to grow, providing both students and alumni with greater professional opportunities,” said School of Engineering Dean Hasan Sevim. “Our faculty has excelled not only in their teaching duties, but also in research and scholarly activities. I am extremely proud of the positive impact the School is having on the region, as well as the engineering field.”

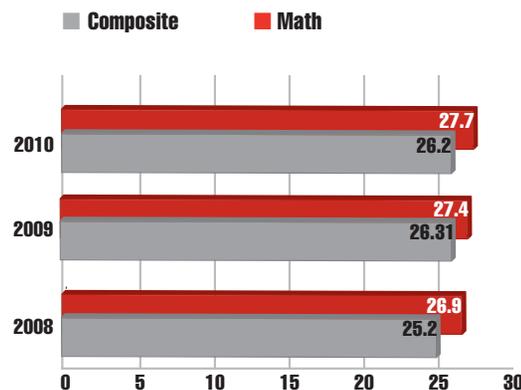
Faculty Scholarly Publications

The School of Engineering is proud to announce that its 45 faculty members have been steadily increasing their scholarly publications since 2007. The total number of publications, including journal and proceeding articles, chapters and books has increased 50 percent from 2007 to 2010, reaching an average of 2.3 publications per faculty, per year. The addition of 18 new faculty members over the past five years has enhanced the School’s commitment to the teacher-scholar model.

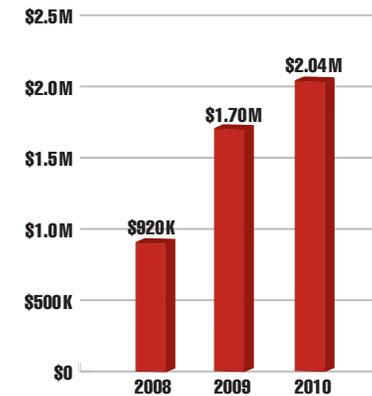
Record Enrollment



Record Average ACT Scores
First Semester Freshmen - Fall 2010



Record External Funding



Engineering Degrees

The SIUE School of Engineering offers a comprehensive collection of professionally accredited engineering programs:

Civil Engineering – BS, MS

Computer Engineering – BS, Minor

Computer Science – BA, BS, MS, Minor

Construction Management – BS, Minor

Electrical Engineering – BS, MS, Minor

Industrial Engineering – BS, MS, Minor

Manufacturing Engineering – BS, Minor

Mechanical Engineering – BS, MS, Minor

Engineering Science – Ph.D.
(collaborative program with SIU Carbondale)

Engineering Academic Success



A message from the Provost

For the past five years, the SIUE Division of Academic Affairs has been guided by five imperatives: academic quality and effective assessment, student success, faculty development, enrollment management, and educational outreach. The School of Engineering has enjoyed extraordinary success in pursuing each of these imperatives and has been a model for the University.

In particular, the School has been very successful in attracting and retaining the best and brightest students. For example, 36 of the 138 members of the fall 2010 freshman class are at the 90-100th percentile of their high school class and achieved 30-36 on the ACT math scores.

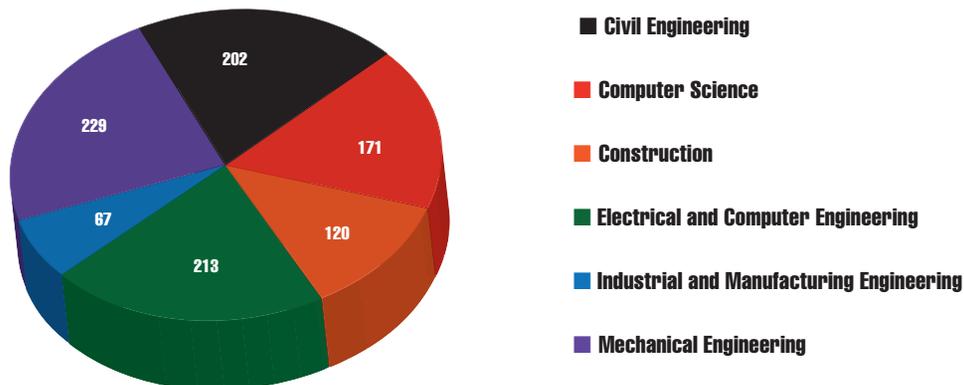
The success of the School is also marked by continuing robust enrollment growth with the fall 2010 semester recording a historically high number (1,243) of undergraduate and graduate students. School of Engineering faculty have continued an upward trend in total publications and receipt of external grant funding in support of their scholarship and teaching. This provides our students with a superb exposure to real-world problems, as well as challenging academic experiences.

The dean, faculty, staff and students of the SIUE School of Engineering are to be congratulated for this remarkable record of achievement.



Paul W. Ferguson, Ph.D.
Provost and Vice Chancellor for Academic Affairs

2010 School of Engineering Undergraduate Enrollment by Program



Supporting Student Success

Scholarship support is an essential tool to recruit highly qualified students to the School of Engineering who have financial need, including female and minority students.

The School of Engineering has fewer than 20 partial need- and merit-based scholarships available to deserving students. As a result, many of those students who decide to attend college to earn an engineering degree without financial support are overwhelmingly left to work long hours or incur high interest rate loans to pay for tuition.

It is the School's goal and vision to remedy this by seeking and providing endowed scholarships for engineering students. The following stories exemplify how scholarships support student success.



Paying It Forward

Damien Di Vittorio

"Thanks to the generosity of The Boeing Co., this scholarship has allowed me to concentrate on both my studies and extra-curricular activities, such as Engineers Without Borders."

**Help us *define excellence*
in the School of Engineering**

Defining Excellence

THE CAMPAIGN FOR SIUE

siue.edu/definingexcellence

Senior civil engineering major Damien Di Vittorio knows firsthand how instrumental having a scholarship is. Not only has the \$3,000 Boeing Company Scholarship allowed the Belleville, Ill., native to devote his time to achieving high scholastic marks but it has also given him the time to invest in improving the lives of others.

"Thanks to the generosity of The Boeing Co., this scholarship has allowed me to concentrate on both my studies and extra-curricular activities, such as Engineers Without Borders," Damien said.

As the SIUE chapter president for Engineers Without Borders (EWB), Damien led his peers during a two-week engineering mission in Pimienta, Honduras in 2010. Students constructed and installed gutters on houses as well as two drainage ditches for the Casitas community whose residents did not have running water in their homes.

Only one week after the group returned to U.S. soil, a tropical storm tore through Central America which

poured a significantly large amount of rainfall on Casitas and put the EWB project to a real test. "The timing of our project couldn't have been any better," said Damien. "We heard from our contacts in Pimienta that the drainage ditches held up amazingly well, which was what we were hoping to hear all along."

Along with fellow SIUE-EWB students and members of the Gateway Professional Partners Chapter of St. Louis, Damien returned to Pimienta in fall 2010 for a joint assessment of plans to reconstruct a bridge that fell victim to Hurricane Mitch's disastrous blow in 1998. The project is expected to take two years to complete.

Damien was so inspired by the EWB outreach that he changed his concentration from structural to environmental engineering. "The whole experience greatly impacted me," he said. "My focus going forward will be in water, wastewater and storm water management." Damien plans to pursue a master's in environmental engineering following graduation.

"The PIECES program is setting me up to succeed."

Set Up to Succeed

Quindarryl Adams

"I was planning on coming to SIUE. It was my first choice because it has a really good engineering program," said Quindarryl Adams, a freshman civil engineering major and recipient of the prestigious PIECES award.

The Partnership with Industry for Engineering Cooperative Experiences and Scholarships (PIECES) program provides financial, academic and social support to students pursuing bachelor's in engineering who are academically talented and have demonstrated financial need. PIECES scholars are assigned both a faculty mentor and a peer mentor and benefit from financial support in the form of direct scholarship funding, as well as internship opportunities at area engineering firms.

The support from the PIECES award is allowing Quindarryl to focus his energy on excelling academically rather than working long hours in order to afford school tuition. "The PIECES award was the only way I could afford to attend college. This scholarship got me through the door," Quindarryl said. "The program is setting me up to succeed."

Quindarryl credits the PIECES program with giving him more than financial support, but also student growth and career preparation as well. He is gaining hands-on experience through an internship with the Missouri Department of Transportation. He is also learning valuable information about professionalism and teamwork from the industry engineers who participate in the program's monthly guest speaker series.

Quindarryl attended high school at the Construction Career's Center (CCC) in St. Louis, which is the first charter high school for construction in the nation. He worked closely with the CCC's placement coordinator, Gwen Crimm. She spoke highly of Quindarryl's success.

"I am delighted Quindarryl had the opportunity to apply and be accepted into the PIECES program. The program provides a financial resource for under-represented, talented learners to pursue their goals in a math and science career pathway," Crimm said. "The rigor of the application process helped affirm to Quindarryl that he has made all the correct moves through high school, and here is the reward."





Inspiring Future Leaders

Tyria Riley

Originally from East St. Louis, Tyria Riley knew from an early age that she was interested in math and electronics, so engineering was a natural choice. She came to SIUE to study electrical engineering, graduating in 2002 with a bachelor of science.

After graduating, Tyria worked for a short time as a contract engineer at Coin Acceptors before getting a job at The Boeing Co., where she has worked for seven years. Over these last seven years, Tyria has had the opportunity to work in many different areas of the company, with a variety of responsibilities.

Tyria was recently selected for the Boeing Defense Space and Security Engineering Skills Rotation Program. Less than 20 Boeing employees are chosen for the elite two-year program, which is designed to enhance employees' career development while

broadening Boeing's experience base. "I'm hoping to gain experience in the systems engineering and supplier management functions," Tyria said.

Her commitment to hard work and continuing education has had a significant impact on her robust career. "I have my master's in systems engineering, and I'm currently a doctoral candidate in engineering management at Missouri S&T," said Tyria. She will graduate in December 2011.

Tyria's success in education began at SIUE, where she was not only an excellent student, but also an active member of the National Society of Black Engineers (NSBE) student chapter. She served as secretary, and eventually president, during her time at SIUE. Tyria continues to give her time to NSBE, and is currently serving as the 2011 technical professional conference

planning chairperson. She also acts as a mentor to current and prospective engineers, including some who are studying at SIUE.

She said that her goal as a mentor is to be open and honest with her mentees. "I let them know that there will be challenges, but to continue to believe that this is what they want to do and to persevere."

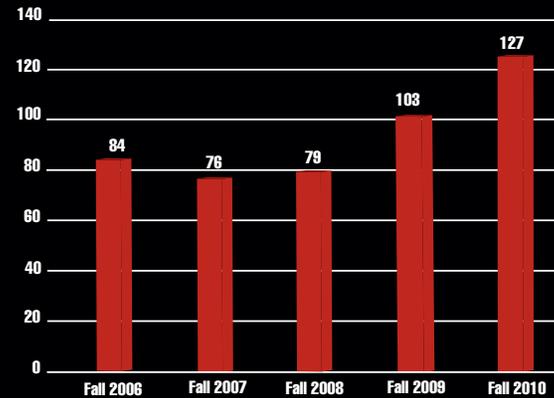
Tyria realizes that there are unique challenges for young women in the male-dominated field of engineering. She knows that establishing and maintaining credibility isn't always easy, and she has specific advice for determined young women. "Keep pushing, work hard, expect challenges and understand that you have just as much to bring to the table as your male counterparts."

"Keep pushing, work hard, expect challenges and understand that you have just as much to bring to the table as your male counterparts."

Taking the Lead

Although a majority of engineering students are male, SIUE School of Engineering female student leaders stand out and take charge in their classes, organizations and teams. Several of the outstanding female School of Engineering students share their thoughts and experiences.

Female Student Enrollment Growth



What inspired you to study engineering?

I have a natural curiosity about how products and systems operate and function. I plan to contribute to diversifying the engineering field while improving the design of modern life.

Jackie Walls, Chicago
Junior civil engineering major
Secretary, National Society of Black Engineers student chapter

I want to be an inspiration for other women, especially mothers like myself. I want women to know that they can follow their true passion and not limit themselves.

Jenny Voss, Greenville, Ill.
Senior industrial engineering major
President, Joint Engineering Student Council

Have you faced any challenges as a female student leader?

Former female student leaders have definitely set the bar high. I think students and faculty have come to expect female-led organizations to be very efficient.

Andrea Spihlman, Trenton, Ill.
Senior mechanical engineering major
Vice President, Joint Engineering Student Council

The membership of my organization has been very supportive, they voted me into a leadership position, after all. I don't feel like I am treated differently from the guys, they are just more polite to me than they are to each other!

Jessi Hill, Godfrey, Ill.
Senior construction management major
President, Constructors Club

The biggest challenge I'm facing has nothing to do with the fact that I am female. It is balancing study time for classes with my commitment to a student organization, for which I am very passionate.

Leslie Stallons, Charleston, Ill.
Junior civil engineering major
Vice President, Engineers Without Borders

What motivates you to keep leading?

I want females to be well represented in the engineering field.

Jing Huang, China
Civil engineering graduate student
Vice President, Institute of Transportation Engineers

My motivation is definitely to be a great role model for anyone with whom I come into contact. Being African American, I want younger kids to look at me and see that, while it may be hard work, it is so worth it. My greatest motivators are my nieces, nephews and my goddaughter. I want them to know that they can achieve great things.

Va'Juanna Wilson, St. Louis
Electrical engineering graduate student
Treasurer, Joint Engineering Student Council
Vice President, National Society of Black Engineers



Collegiate Competitions

Collegiate competitions give students the opportunity to apply their classroom learning in a team environment. Students gain important communication and leadership skills, which benefit their current studies and their future careers. Support for student projects will provide valuable hands-on experience and a competitive edge to our students. Donor funds will enable the School to remain competitive and continue to meet the demand for engineers, which will benefit the prosperity of our region and the nation.



"My Baja experience directly reflects working as a professional engineer in that it is not all about crunching numbers and running calculations."

Ready to Win

Ben Klene

Ben Klene, an electrical engineering major, has always enjoyed working on cars and motorcycles. That passion motivated him to join the Cougar Baja Team and compete in the Baja SAE, an off-road vehicle design competition sponsored by the Society of Automotive Engineers (SAE).

Ben, a junior, has learned just how valuable and rewarding it is to participate in student teams and competitions, and takes pride in his team's accomplishments. "We fund, design, test, build and race a car in an annual competition, gaining experience you just can't find in a classroom," Ben said.

In his three years as a member of the Cougar Baja Team, Ben has cultivated invaluable skills that will contribute to his success as a professional in the industry, including stronger communication skills and a more extensive knowledge of vehicle design and fabrication. "My Baja experience directly reflects working as a professional engineer in that it is not all about crunching numbers and running calculations," he said. "It is also about doing the best job you can with the resources you are provided."

Real-world applications and skills are not the only benefits Ben has gained. At a School of Engineering Alumni Breakfast in October 2010, Ben met alumna Verbal Blakey as he represented the Baja Team. She offered Ben an interview with BHMG Engineers in St. Louis, and he was ultimately offered a job. "I accepted! The whole process was everything I have worked for," he said.

Verbal describes Ben as a valuable addition to the BHMG team. "When I met Ben at the Alumni Breakfast, I was impressed with how articulate and passionate he was while describing his experiences with the Cougar Baja Team," Verbal said. "Ben's experiences with the Cougar Baja Team have no doubt played a role in development of his outstanding work ethic, professionalism and passion as an engineering intern."

Ben assists professional engineers at BHMG on various projects around Missouri, Southern Illinois and neighboring states. He exemplifies how working in student teams and participating in competitions offers a world of growth, benefits and rewards.

Student Design Team Results

There are more than 10 student design teams within the School of Engineering. Each year, student design teams dedicate hundreds of days preparing for and taking part in various competitions. Skills gained while participating in student team projects further empower students to succeed in their careers. The excellence of student projects has been a catalyst to attract many talented students to the School of Engineering. Although the students have been working with limited resources, they have accomplished outstanding results.

Six of the teams are highlighted below.



American Society of Civil Engineers (ASCE)

The Concrete Canoe and Steel Bridge teams performed extraordinarily well at the ASCE Mid-Continent Regional Conference, held at the University of Oklahoma. The Concrete Canoe team earned first place overall, dominating the race events and several of the technical categories. The Steel Bridge team won the aesthetics category and various others, earning them third place overall. This is the second consecutive year both teams have earned the right to compete at the national level.

Some of the teams competing in the Mid-Continent Region were the University of Kansas, Missouri University of Science & Technology, University of Missouri-Columbia, University of Nebraska, University of Oklahoma, Oklahoma State University, SIUC and Washington University.

Society of Automotive Engineers (SAE)

The Cougar Baja team was very successful at the 2010 SAE International Baja Competition held at Clemson University. In only its fourth year of competition, the Cougar Baja team placed 17th overall out of 106 teams from around the world, and 10th out of teams from the United States. The team's main focus this year was to improve its performance in the maneuverability event. They placed 11th overall in maneuverability, validating all of their hard work throughout the year.

The Formula SAE Racing Team competed in the International SAE event, held at Michigan International Speedway. They finished 97th out of 120 teams. The car had mechanical issues, which kept the team from competing in any of the race events.

Institute of Electrical & Electronics Engineers (IEEE)

The IEEE robotics team, consisting of students from the computer science, electrical engineering and computer engineering departments, finished seventh out of 27 teams at the IEEE Regional Robotics Competition hosted by the University of Texas-Arlington. Team members designed and built the robot from scratch, built the circuitry boards, and wrote all of the code to enable the robot to perform the designated tasks of the competition.

Mini Grand Autonomous Vehicle Challenge

The SIUE Autonomous Golf Cart team earned third place out of 12 teams at the Mini Grand Challenge held on the campus of Pennsylvania State University-Abington. The interdisciplinary team, comprised of students from electrical & computer engineering, computer science and mechanical engineering, designed and built a vehicle that could not only find its way around the campus of Penn State Abington, but also avoid obstacles and entertain spectators at the same time.



Help us *define excellence*
in the School of Engineering

Defining Excellence

THE CAMPAIGN FOR SIUE

siue.edu/definingexcellence



Setting the Stage

Duygu Sagioglu, Ismail Cem Kuru, Tarkan Serim and Tansu Gurcay

The School of Engineering's dual diploma program will graduate its first four students in May 2011. The program is a collaborative effort between SIUE and Istanbul Technical University (ITU) and offers Turkish students the opportunity to earn degrees in industrial engineering from both institutions.

Duygu Sagioglu, Ismail Cem Kuru, Tarkan Serim and Tansu Gurcay are the first students who took part in this valuable and exciting opportunity. After fulfilling the program guideline of studying their freshmen and junior years at ITU and sophomore and senior years at SIUE, they will participate in SIUE's May commencement ceremony.

Cem Karacal, associate dean of the School of Engineering and coordinator of the dual diploma program, believes the program has been a great success. "The students have performed wonderfully in their academics, which reflects well on SIUE," he said. "They personally benefited from the experience as well."

The program does more than offer students a chance to earn dual diplomas; it gives them a chance to experience what life is like beyond their homeland. When asked about living internationally, Duygu said, "This is an opportunity of a lifetime which has broadened my perspective and allowed me to experience what happens around the globe. I think it will have a crucial impact on my life in the future."

Tarkan believes that experiencing different cultures and learning about how things function in other countries will greatly help him in his career. "I now have a second, and more informed, opinion. My experiences at SIUE have greatly enhanced my world view."

Ismail Cem agreed that the dual diploma program is preparing him for future success. "Experiencing the industrial engineering discipline as it is in both the U.S. and Europe has given me the edge that I need to be successful in the corporate work environment," he said. "If I had the chance to go back and do it again, I wouldn't change a thing."



GCER International Competition

In July 2010, more than 500 middle- and high-school students, families and educators interested in robotics visited the SIUE campus from across the U.S. and around the world—coming from the Middle East and Poland. The students visited campus to attend the Global Conference On Educational Robotics (GCER), which was hosted by the School of Engineering. The GCER competition included the annual International Botball tournament, which challenged students to design and program autonomous robots

Each year the KISS (Keep It Simple, Stupid) Institute for Practical Robotics, a non-profit organization based in Norman, Okla., equips teams with the support materials for regional, national and international robotics competitions. Botball is an innovative educational program which uses robotics and computer programming to engage and excite students to pursue

careers in science, technology, engineering, math and project management.

SIUE has been the site for regional competitions in the past, but this is the first time the international competition has been held on campus. “This global event was very exciting and gave us a chance to play host to several hundred bright students from around the world,” said Jerry Weinberg, computer science professor and acting dean of the SIUE Graduate School.

The SIUE School of Engineering faculty and students organize several robotics mini camps and visit middle schools each year to talk about the importance of robots in our lives. These efforts are clearly making an impact in the region, as four area teams made it to the finals of the international competition this year, with St. Mary’s School in Edwardsville taking second place overall.

“This event accomplished several things,” Weinberg said, “not least of which was a chance to showcase our beautiful campus and, perhaps, attract some of these students to SIUE when it’s time for them to decide on a university. But, there’s also the educational component, the hope that some of these students will consider engineering and science as career choices because of these types of experiences.”

Katie Manning, a senior at Edwardsville High School, gives credit to SIUE for sparking her interest in this field. “I first became interested in robotics during one of the SIUE science camps,” she said. “I was fascinated by the way an inanimate object could be programmed with a computer to allow it to move by itself.” Katie has plans to enroll in the SIUE computer science program.

“This global event was very exciting and gave us a chance to play host to several hundred bright students from around the world.”

Engineering Excellence

Green with Energy

The School of Engineering's Environmental Resources Training Center (ERTC) has gone green with energy. Enhanced with a wind-powered generator and 140 photovoltaic (solar) panels, the ERTC is now able to generate a substantial portion of its own electricity to operate the Center's training-scale wastewater and drinking water treatment plants, laboratories and research offices.

The ERTC, along with other water treatment centers, is responsible for providing the University and surrounding areas with water that is safe to drink and that is beneficial for other uses, including bathing and recreation. In fulfilling this purpose, the Center was eager to implement resource conservation techniques that pulled from what nature freely offers, wind and sunlight.

Paul Shetley, the director of ERTC, believes the project is an accomplishment for the ERTC and the University in using environmentally responsible energy sources. "As our world changes and time goes on, the importance for finding alternative, affordable energy resources is increasingly important," Shetley said.

The green initiative at the ERTC will demonstrate to water treatment and wastewater systems operators throughout the state and the Metro-East that the alternative energy generation is a viable source of electricity to reduce energy cost. With the installations, the ERTC is equipped to generate up to forty percent of its annual energy usage which will result in substantial cost savings.

"As our world changes and time goes on, the importance for finding alternative, affordable energy resources is increasingly important."

The wind turbine and solar panels are not only offering environmentally responsible power generation, but will also serve as a valuable educational tool. School of Engineering students will receive first-hand instruction on how the new greener energy sources power the building, as well as the processes and work that is conducted at the ERTC. This will be a valuable addition to the sustainable engineering certificate program and course offered by the civil engineering department.

The \$416,000 in funding provided by the Illinois Clean Energy Community Foundation and the Illinois Environmental Protection Agency to complete the alternative energy project, allowed the ERTC to prove that green is not just a color but also a way of life.

Finding Solutions

"Robotic surgery holds the potential to overcome many of the ergonomic challenges posed by laparoscopic surgery."

Sohyung Cho

Sohyung Cho, assistant professor of industrial and manufacturing engineering, is expanding his horizons from laboratories and lecture halls to operating rooms. While Cho is not trading in his engineering enthusiasm for the world of scalpels, he is using his expertise to aid surgeons by focusing on ergonomic analysis of robotic surgery.

Cho teamed with surgeons at the School of Medicine at Washington University in Saint Louis to secure a grant from Intuitive Surgical Inc., the manufacturers of the *da Vinci*® Surgical System. The funding supports research that will explore the ergonomic benefits of performing laparoscopic surgery with the surgical robot versus standard laparoscopic tools.

Surgeons using the *da Vinci*® Surgical System to perform a wide range of minimally invasive surgical procedures report the reduction of bodily stress and occupational injuries. While there are approximately 3,000 peer-reviewed studies indicating the clinical effectiveness of the robotic surgery, no one has formally studied and documented its ergonomic benefits. For that reason, Cho ventured forward with this research opportunity.

"Robotic surgery holds the potential to overcome many of the ergonomic challenges posed by laparoscopic surgery. Indeed, many authors have described subjective improvements in physical stress while performing robotic procedures," Cho said. "However, to date these claims have never been rigorously evaluated."

Cho is involved in a second research project, which is funded by the National Science Foundation Major Research Instrumentation Program. Cho is developing a supply chain test-bed to represent the various layers of supply chains: suppliers, manufacturing facility, warehouses and customer locations. The test-bed will be built in a real-life setting and the SIUE University Bookstore will be a primary retailer.

The test-bed will provide faculty, technical experts and students with valuable resources necessary to develop solutions to manufacturing and supply chain problems. "The test-bed will expose SIUE students to state-of-the-art technology in supply chains and facilitate and encourage their career development in this field," Cho said.





Growing Partnerships

A leading supplier of integrated products, services and support to military forces, DRS Technologies is one of the fastest growing defense technology companies in the world. The global company has a facility in St. Louis and a growing partnership with the SIUE School of Engineering.

John Wootton, chief technology officer for the DRS Tactical Systems Group in St. Louis, recently joined the School of Engineering Advisory Board. Advisory Board members are essential to the success of the School of Engineering. Not only do they contribute real-world, industry knowledge to the School, but also aid students in professional development. Advisory Board members promote the School and SIUE within their companies and throughout the industry, which adds value to all engineering degrees earned at SIUE, past and future.

John, who has worked for DRS Technologies for 31 years, brings his years

of experience and an industry perspective to his advisory role. "I have a passion for ensuring that when students graduate, they are ready to seamlessly transition to industry," he said. "To me, it is vital that the advisory board has a strong industrial base with people familiar with how things are done in industry."

A team of eight engineers from DRS Technologies visited the School of Engineering and Southwest Illinois Advanced Manufacturing (SIAM) to explore opportunities to work on collaborative research projects. The visiting engineering team toured various labs in the Engineering Building and met faculty members whose expertise overlaps with those of DRS Technologies. "DRS Technologies has recruited many SIUE School of Engineering graduates in recent years," Engineering Dean Hasan Sevim said. "We look forward to a mutually beneficial collaboration in the near future."

Together, the SIUE School of Engineering and Kaskaskia College in Centralia, Ill., are preparing students for success. A 2 + 2 articulation agreement between the two institutions allows students to earn a bachelor of science from SIUE in civil, computer, electrical, industrial, manufacturing or mechanical engineering by attending Kaskaskia College for the first two years and transferring to SIUE for the final two years. The agreement ensures efficient advisement and degree completion in a timely manner. Currently, the program has eight students in their second year and another twenty-three in their first year at Kaskaskia College. The first cohort of eight is expected to arrive to SIUE campus in the fall 2011 semester. Similar agreements are in the works with Lewis and Clark Community College in Godfrey, Ill., and St. Charles Community College in Missouri.



The Positive Impact of Partnerships

The School of Engineering Industrial and Professional Advisory councils and the Industrial Advisory Board support the School in several ways. They help the School meet the constantly changing landscape of engineering education, provide student-internship opportunities, help assess strengths and weaknesses of current curriculum, bring contemporary issues and directions to the attention of the administration and faculty, help students develop employment contacts and add credibility to the engineering programs.

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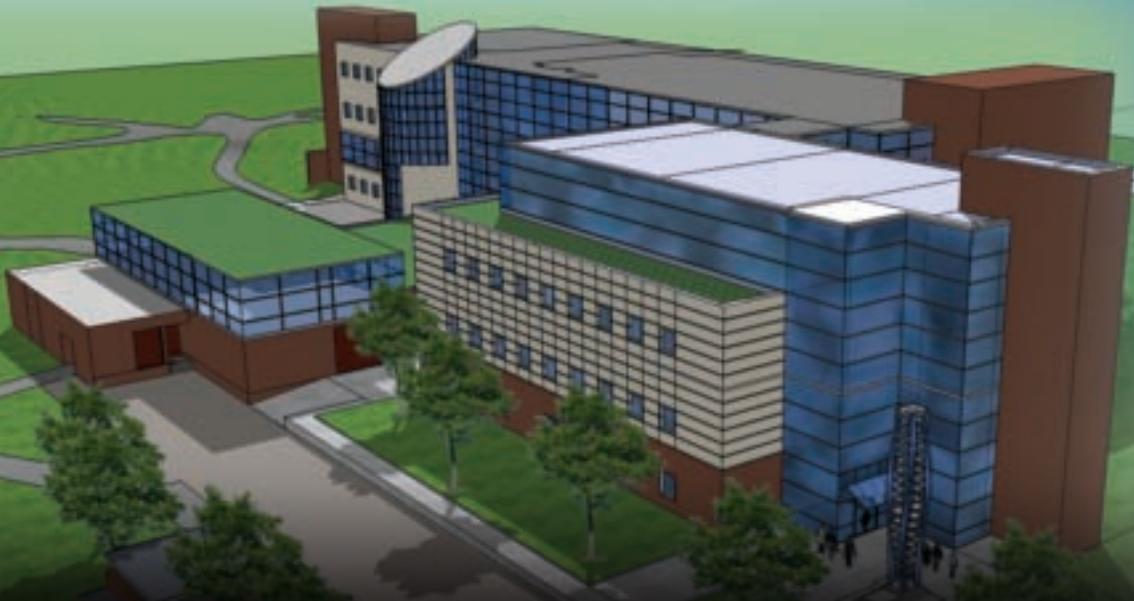
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