the fulton experience
Dear Friends,

Commencement is truly one of the highlights of university life. It is a time to celebrate the combined passion of our students, faculty and staff and the work that we do every day to make the world a better place. It's hard not to be moved by the many stories of individual students. Their drive, imagination and perseverance are inspiring. The sea of maroon robes at convocation and commencement ceremonies are a visible, tangible reminder that our engineering school can significantly impact the world.

Our students have a lot to be proud of—they have earned what society recognizes to be one of the most challenging and rigorous degrees. With their degrees in hand, our graduates are poised to change lives and the world. I expect our graduates to go on to do great things but I also hope that our newest graduates—as well as our alumni—will help us attract, inspire and enable other great students to pursue their dreams, and help us in our pursuit of the discoveries, innovations and solutions to society's challenges.

There are many people who helped our graduates along the way including our Fulton Engineering alumni and friends. The Fulton Engineering family is a worldwide network of more than 31,000 alumni. No matter where our students go, they will always be a Sun Devil. If you graduated last week or 50 years ago, you will always be welcome here. I hope that you will carry ASU with you no matter where life takes you.

Please join me and the faculty and staff of the Ira A. Fulton Schools of Engineering in congratulating our graduates on their impressive accomplishments. As always, I invite our alumni to write and share their news. We love to hear from you.

Go Devils!

Paul C. Johnson, Ph.D.
DeanPaulJohnson@asu.edu
Dean and Professor
The Ira A. Fulton Schools of Engineering rank among the top 50 engineering schools in the United States. The Schools are home to more than 200 faculty, more than 7,000 students and more than $74 million in externally funded research. Fulton Engineering granted 717 undergraduate degrees and 636 graduate degrees in 2009-2010. Today, more than 31,000 Engineering alumni are advancing the fields of engineering and technology in Arizona and around the world.

We emphasize creativity in solving real-world problems, innovation, entrepreneurship, multidisciplinary interactions, societal context and connections. Our 14 undergraduate and 25 graduate degree programs are administered across five unique schools to enable innovative collaboration across disciplines, with faculty and students alike focusing their efforts on developing solutions that will have significant, lasting impact on our local and global communities.
get ready for e2 camp 2011
Rachel Austin, now a junior biomedical engineering major, attended the first camp, the first year that E2 Camp was initiated at the Ira A. Fulton Schools of Engineering. But things have changed since the launch of this innovative orientation for freshman engineering students.

“We had a lot of downtime,” she says. “I went back as a mentor last summer and it is very different. There are so many activities and everything is very well coordinated.”

Downtime this year will be hard to find. In addition to some familiar E2 Camp traditions—the low ropes, the rock wall and ASU 101—there are new activities planned for 2011.

In the new boat building competition, teams of students will be given a variety of common materials such as plastic bottles, milk jugs, craft sticks, tape and more, then it’s time to strategize. With only one hour to actually build the boat, planning and teamwork will be essential. Teams will be recognized for the fastest boat across the pool, creativity in the use of materials, as well as some non-traditional criteria like how many plastic army men stayed on the boat.

In a new gauntlet competition, members of a team will have to complete a task at one station before going on to the next. More team members will join at each subsequent station until the entire team completes the last task. Tasks are designed to build critical thinking skills and reinforce team building. For example, in the toxic transport challenge, teams will be given a can of “toxic” popcorn which they must move to another container without touching or dropping any of the contents.

“Students are given challenges where they might be responsible individually for a small piece, but they recognize that they need the team to accomplish the task,” says Becca Kleinberg, coordinator, first year programs.

New this year is a student-led session on Fulton Engineering traditions. E2 Camp is the first of many Fulton—and engineering—traditions students will participate in at ASU. One of the newly adopted traditions, the Order of the Engineer, is rooted in one student’s E2 Camp experience.

Mr. Chris Kmetty, class of ’97, spoke at camp, about his love of engineering and his “pinky ring” daring the students to ask him why he wore it. Joy Marsalla, class of ’11, took him up on his dare. “It’s important to take the [Order of the Engineer] oath because the public trusts that the planes we design will fly safely and the dams we build will hold the water back,” he said, explaining the important role that engineers play in society.

Marsalla took that belief to heart and called him. “I didn’t expect her to call me, but here we are two years later,” Kmetty says of Marsalla’s determination. The duo worked together with Paul Johnson, dean and professor of Fulton Engineering, to bring the ceremony to Ira A. Fulton Schools of Engineering. Over 200 engineers have taken the oath since the first ceremony in April 2010.

In 2008, the first year, 665 freshmen attended E2 Camp. More than 1,000 freshmen are expected to attend E2 Camp in 2011.

Laila El-Ashmawy, Civil Engineering, Spring 2011 and Justin Cooper, Civil Engineering, Dec 2011 show off their Sun Devil spirit and their Order of the Engineer “pinky rings.”

Similar to the Hippocratic oath, the Order of the Engineer’s Obligation serves as a ceremonial reminder that the primary purpose of engineering is to serve the public and that all engineers share a common bond. The lifelong pledge is offered to all graduating seniors and alumni of ABET-accredited programs as well as Professional Engineers licensed in the United States.
Faculty, students and friends of the Ira A. Fulton Schools of Engineering recently gathered for a groundbreaking ceremony to celebrate the start of construction on the new engineering design, integration and prototyping studio at the Engineering Center on ASU’s Tempe campus. The studio is the next step in eSpace—a collective investment in innovative, hands-on learning spaces for students.

The new facility will replace some existing space in the Engineering Center G-wing with open, engaging space designed to build excitement about engineering and foster collaboration especially for freshman engineering students. It will back up to the High Performance Computing Lab, a new facility, that provides students with access to state-of-the-art computing tools.

“This eSpace design studio reflects our commitment to provide tools and facilities that enable our students to do real engineering from day one,” says Paul Johnson, dean and professor of Fulton Schools of Engineering.

The studio will primarily support the newly designed, freshman courses including Introduction to Engineering (FSE 100). Working in teams, students in FSE 100 are introduced to the profession as they learn the engineering design process, engineering models and critical communication skills. These two-credit classes include one hour of lecture and three hours of lab.

Lab time enables students to do real world engineering work from the beginning of their academic experience at ASU. Freshmen participate in multiple team-based projects culminating in a final project during the last half of the semester. These projects include hydroelectric power generators, solar cars, robotics and solar power generation systems.

Teams participating in Engineering Projects in Community Service (EPICS) will also use the studio to plan their entrepreneurial service projects and test proposed engineering solutions.

Inside, two main rooms will have capacity for 40 students each. Each room is equipped with high-end computers to power engineering applications. Interactive design areas, projection screens, whiteboards and writeable glass wall panels that line the exterior encourage collaboration. The majority of the room is modular—moveable tables, rolling cabinets with tools and power cables that can be pulled from above—allowing flexibility to accommodate a wide spectrum of learning experiences from classroom lectures to large-scale design and demonstration.

Finished projects can be showcased in display cases or in front of the glass panes for public viewing.

More information:  new.engineering.asu.edu/espace  engineering.asu.edu/epicsgold

Photo courtesy of Cannon Design.
Dean Paul Johnson digs up some dirt at the groundbreaking ceremony for the eSpace studio in the Engineering Center. With him are Richard Filley, director of EPICS; Rick Martorano, director of facilities and space renovations; James Collofello, associate dean of academic affairs; and Edward Hall, executive associate dean for research.
Student organizations and teams help close the gap between the classroom and the workplace—and for many, provide a way to reach out, give back and have fun.

ASU is home to over 35 engineering student organizations ranging from honors and professional associations to groups building racecars or programming robots.

“Student organizations fill an important role in the educational experience,” says Wade Gyllenhaal, president of the ASU student chapter of the Society of Automotive Engineers. “We provide opportunities for early hands-on experience, introductions to industry and important networking connections.”

Devin Bulyer, a freshman, credits Women in Computer Science with helping her transition to college and life away from home. She says the group was a great way to meet friends, find tutors and get to know faculty. Plus, she says it’s fun and she still feels like she is doing something important.

**Importance of getting involved**

Recent graduate Chase Farnsworth says that participation in the Associated General Contractors Chapter (AGC) at ASU provided him with “great opportunities to team up with local contractors to provide service to the community and learn at the same time.”

Most of the organizations do have an outreach component as well, helping to bring engineering into elementary, middle schools and high schools.

Brian Perea, a member of the Society of Hispanic Professional Engineers (SHPE) says that the group works in conjunction with the Mathematics, Engineering, Scientific Achievement (MESA) program, a free after-school educational program whose purpose is to assist underserved ethnic minorities, girls, low income, and first generation college-bound students pursue course work, advanced study and possible careers in math, engineering and science. SHPE members work with younger students on projects making water bottle rockets, solar ovens and paper bridges.

ASU received an Excellent University Award from the American Concrete Institute in 2011, in part due to the strength of our student organization.
A team of Ira A. Fulton Schools of Engineering students will be competing in the world’s premier student technology contest in New York City, July 8-13.

Team Note-Taker earned a place in the Microsoft Imagine Cup Worldwide Finals by taking the top prize in the U.S. National Imagine Cup event April 11 in Seattle, Wash.

The students’ project is a portable custom-designed camera with a touch-screen tablet PC that aids visually impaired students. It has been developed in the Fulton Engineering Schools’ Center for Cognitive Ubiquitous Computing (CUbiC).

Led by graduate student David Hayden, the team includes computer science students Michael Astraukas, Qian Yan and Shashank Srinivas. They’re mentored by CUbiC lab director John Black.

The team entered the Software Design division of the event, the Imagine Cup category in which competition is considered the toughest, Black says.

Two other teams of computer science students in the School of Computing, Informatics, and Decision Systems Engineering competed in the national finals.

Team EDO Ryan Scott and Travis Sein finished in fourth place in the competition’s Mobile Game Design category. They developed a game called Word Mine as a mobile-phone application, aimed at making it fun to learn vocabulary, spelling and different languages.

ASU Team Transit Trackers Kevin Putman, German Greiner, Steven Hernandez, Arash Tadayon competed in the Software Design category. The team developed technology for a prototype of information network to make it easier for people—especially the visually impaired—to use public transit.
The Engineering Projects in Community Service program, known as EPICS Gold at ASU, organizes teams of undergraduate students to design, build and deploy systems to solve engineering-based problems for not-for-profit organizations such as charities and schools. Thirty-five students enrolled in the first series of EPICS courses offered fall 2009, and 101 students enrolled in fall 2010. ASU is one of more than 20 university partners in the national EPICS program.

Over 20 project teams have been formed for the 2010-2011 academic year with many projects that address needs in the Phoenix metropolitan area and four projects overseas in Bangladesh, Malawi, El Salvador and Haiti.

ASU’s EPICS program also has a high school outreach component involving three local high schools—Xavier College Preparatory, Phoenix Union Bioscience and Marcos de Niza—in collaborative service-learning projects with ASU students.
Our engineering students win support for entrepreneurial ventures

Seven teams led by students in the Ira A. Fulton Schools of Engineering are winners in Arizona State University’s 2011 Innovation Challenge.

Students compete for funding for entrepreneurial endeavors that focus on innovative ways to help communities on local or global scales—through new product development, business ventures or community service partnerships.

Winning teams can be presented grants ranging from $1,000 to $10,000.

More than 150 teams applied to compete in this year’s Innovation Challenge, and 30 were selected as finalists to present their plans to a panel of judges. Fulton Engineering students led 11 of teams advancing to the finals. Sixteen of the teams have been awarded grants.

Winning teams led by Ira A. Fulton Schools of Engineering students are:

bioSPY ($4,880 grant) bioSPY is developing a proof-of-concept in a sound business model based on a healthcare need for peptide-enhanced medical devices that confer the specificity required in the administration of personalized medicine.

Fulton Engineering student members include team leader Casey Hallberg and Anil Prasad. The team mentor is professor Neal Woodbury, the chief scientific officer for the Biodesign Institute at ASU.

Augmented Innovation ($2,500 grant) Augmented Innovations creates a novel computer interface for doctors to be able to access and interact with patient data technologies in sterile environments.

Fulton Engineering student members are team leader Arash Tadayon and Colin Ho. The team mentor is Sreekar Krishna, an assistant research technologist with the schools of engineering.

SP2 Energy ($2,000 grant) SP2 Energy has developed a unique solar power generator and is collaborating with another Innovation Challenge award winner, Project LOCAL, to provide power for Project LOCAL’s container clinic.

Engineering student members are team leader Aaron Peshlakai, Dimitris Papachristoforou and Eu Teum Song. The team mentor is Anita Grierson, director of the Motivated Engineering Transfer Students center.

Project L.O.C.A.L. ($2,000 grant) Project L.O.C.A.L. is developing a facility out of a retired shipping container that provides a safe and clean place to give birth; the team is also collaborating with U.S.-based doctors to develop a training program for practicing African midwives to prevent deaths by hemorrhage, sepsis, obstructed labor and hypertensive diseases.

Engineering student members are team leader Susanna Young, Louis Tse, Brent Dodson, Clay Tyler and Jasmine Nejad. The team mentor is Jan Snyder, program manager for the Engineering Student Outreach and Retention Program.

Doc-in-a-Box ($1,500 grant) Doc-in-a-Box is the solution to meet the need for mobile medical clinics in disaster areas, while at the same time recycling unused shipping containers.

Engineering student members are team leader Gabrielle Palermo, Joshua Winterstein, John Walters and Gwendolyn Torrens. The team mentor is Andy Roberson, president and founder, of TeleHELP.

Multiplexed Diabetes Management ($1,500 grant) Multiplexed Diabetes Management (MDM) is a transformative technology with long-term impact in diabetes care.

Engineering student members are team leader Aman Verma, Christopher McBride, Anabel Murillo, Teagan Adamson and Zachary Decke. The team mentor is Jeffrey La Belle, assistant research professor in the School of Biological and Health Systems Engineering.

Project Upepo ($1,500 grant) Project Upepo seeks to focus sustainable technology to produce meaningful change by combining education, employment and electrification via wind technology.

Engineering student members are team leader Emily Kempe, Michael Hillebrand, Alex Padilla and Andrew Eckenrode. The team mentor is Dan O’Neill, of ASU’s Venture Catalyst group.
The Fulton Undergraduate Research Initiative (FURI) has become one of our premier undergraduate experiential opportunities. FURI is designed to enhance and enrich a student's engineering education by providing hands-on lab experience, independent and thesis-based research and travel to national conferences. Students select, design and complete research projects under the guidance of faculty mentors and present their findings at an annual public symposium.

In 2009, FURI featured 160 research projects attracting more than 125 participants and over 400 visitors. Nearly 25 percent of the school’s faculty mentored FURI students, with female and underrepresented minority students comprising nearly two-thirds of FURI participants.

Students cite FURI experiences as being extremely valuable and rewarding. Students learn to pursue new knowledge outside of the classroom and textbook, develop confidence in their ability to be creative and innovative, and gain insight to what it is like to be a graduate student at a research-intensive university.
Jeffrey La Belle chats with students at the spring 2011 FURI Symposium

Thirteen of La Belle’s undergraduate students presented at the recent FURI (Fulton Undergraduate Research Initiative) Symposium, a semi-annual public event that highlights student research in the program.

Jeffrey La Belle, assistant research professor in the School of Biological and Health Systems Engineering, is leading use-inspired research focusing on noninvasive sensing and point-of-care technologies. He is focusing on the challenges of early detection and effective management of leading diseases such as diabetes, cardiac issues, cancer and infectious diseases.

In one of his research projects, La Belle has teamed with Mayo Clinic and BioAccel on a new type of self-monitoring blood glucose sensor that enables patients to test tear samples rather than blood.

More than 23 million people in the United States have diabetes. La Belle says that many are reluctant to test blood glucose levels because of the painful finger-prick testing method used today. Testing tears provides the same accuracy and may help encourage more frequent testing and lead to better control of the disease.

La Belle is engaging students in this research and other projects, with 30 students from across disciplines working in his labs. He is also encouraging future Sun Devils through a year-long, after-school internship for high school students.

Learn more about La Belle’s research: labellelab.asu.edu.

Teagan Adamson,
Biomedical Engineering
Graduation: May 2012
A SIMPLIFIED AND INTEGRATED GLUCOSE-MONITORING BIOSENSOR
Focusing on one possible biomarker, glucose, in combination with the GDH-FAD enzyme and electrochemical impedance spectroscopy (EIS) techniques easy to use, less invasive, home-based biosensor that measures blood glucose levels over a long period of time, and has the sensitivity of clinical lab instruments.

Theresa Broniak,
Biomedical Engineering
Graduation: May 2012
FIXATION OF HSC-REACTIVE PROTEIN ON GOLD DISK ELECTRODE
The objective is to detect C-reactive protein (CRP) levels in a body correlating it to disease state. Future work will involve an enzyme-linked immunosorbent assay of CRP as well as replication of electrochemical impedance spectroscopy experiments for concentration detection using gold disk electrodes.

James Choca,
Mechanical Engineering
Graduation: May 2011
THE MUSCLE STAGGERED ARRAY
This study aims to determine an optimal design for a prosthesis actuator that utilizes actuator-grade shape memory alloy (SMA) wires. The actuator utilizes staggered SMA wires to achieve linear compression levels comparable to that of human muscles.

Zachary W. Decke,
Biomedical Engineering
Graduation: May 2013
UTILIZATION OF INSULIN IN MULTI-MARKER BIOSENSING FOR BETTER DIABETES MELLITUS MANAGEMENT
Optimization of insulin detection techniques are currently being researched as the project moves towards electrochemical impedance spectroscopy (EIS) as the goal in effective and accurate multi-marker sensing. Ultimately, insulin and EIS will be incorporated, along with other markers, onto a device that is both highly sensitive to physiological changes and highly specific to each individual marker.
Brittney Haselwood, Biomedical Engineering
Graduation: May 2012

INVESTIGATION OF ELECTROCHEMICAL TECHNIQUES OF KEY BIO-MARKERS TO OBTAIN A CONTINUOUS SENSOR TO BE APPLIED TO TRAUMATIC BRAIN INJURY

It is known that catecholamine concentrations (Dopamine, Norepinephrine, and Epinephrine) change with injury and are significant in monitoring Traumatic Brain Injury (TBI) processes such as inflammation. The goal is to create an electrochemical sensor to track the progress of TBI, helping to avoid common issues and make treatment more customized and effective.

Tina Hakimi, Biomedical Engineering
Graduation: May 2012

DEVELOPMENT OF A MULTI-MARKER STRESS SENSING DEVICE

The goal of this project is to develop a biosensor which will monitor the levels of five biomarkers in the body which have shown promise as indicators of stress related injuries or illnesses. A powerful diagnostic tool which simultaneously detects the presence, decrease, or increase of all five markers, this sensor can aid health care professionals in their ability to rapidly respond to a trauma incident.

The Fulton Undergraduate Research Initiative (FURI) has become one of our premier undergraduate experiential opportunities. FURI is designed to enhance and enrich a student’s engineering education by providing hands-on lab experience, independent and thesis-based research and travel to national conferences. Students select, design and complete research projects under the guidance of faculty mentors and present their findings at bi-annual public symposiums in the fall and spring.
Katherine A. Ruh, Biomedical Engineering
Graduation: May 2012
WEARABLE-SUBCUTANEOUS, CONTINUOUS ELECTROCHEMICAL SENSOR
The objective of this research effort was to create a minimally invasive continuous stress sensor that can be comfortably worn on the body to measure the wearer’s stress levels. Future work includes building the adhesive patch and performing skin depth modeling.

Lindsey Ryder, Biomedical Engineering
Graduation: May 2014
DEVELOPMENT OF AN ELECTROCHEMICAL SENSOR FOR THE STUDY OF CARDIOVASCULAR DISEASE
The objective of this study is to develop a highly reproducible electrochemical electrode for future study of biomarkers for cardiovascular disease and diabetes. Future work will include optimizing the sensor as a multi-marker device that will indicate risk for cardiovascular disease.

Neil Saez, Biomedical Engineering
Graduation: May 2013
LONG-TERM STORAGE SOLUTIONS FOR A TEAR-BASED GLUCOSE SENSOR
This research focused on optimizing the design of a tear-based glucose sensor, in order to increase viability of the electrochemical reagents over its shelf-life. This new sensor assembly will allow for more extensive in-situ testing of tear-glucose levels.

Pankti Shah, Biomedical Engineering
Graduation: May 2013
ELIMINATION OF ELECTROCHEMICAL INTERFERENTS IN GLUCOSE TEAR SENSOR
As electrochemical interferents have been shown to affect the performance of a non-invasive tear glucose sensor, evaluation of potential solutions was completed, accomplishing slight improvement in reducing interference of ascorbic acid and acetaminophen. Further studies will involve investigating new ways to eliminate noise more effectively and integrating these changes into an updated device.
senior capstone

Fulton Engineering’s senior capstone provides a comprehensive design experience for our engineering students in the last year of their undergraduate studies, preparing them for the transition from student to practicing engineer. The purpose of the capstone experience is to give students the opportunity to put their academic study to work by solving a practical engineering design problem.

Working individually or in teams, students take a project through definition, design, implementation and testing. They also must take into account budgetary, environmental, ethical, political and health and safety considerations, as well as design for manufacturability and sustainability.

The capstone projects provide a bridge between coursework and industrial application. A critical component of the program is our network of industry partners. By offering a wide range of real-world projects, students can find the right match for their academic interests and career goals.
Our students have provided custom engineering designs and valuable data for challenges from energy to health. We are producing well-prepared graduates and a stronger workforce, while also strengthening the ties between academia and industry.

To support our increasing enrollment, Fulton Engineering continues to expand both individual and corporate sponsors of senior capstone projects locally, nationally and globally.

use-inspired research
The Engineering Career Center at the Ira A. Fulton Schools of Engineering provides comprehensive services for students, alumni and industry. The Center combines both in-person and online resources that provide career coaching and serve as a single point of contact to connect industry recruiters and job seekers.

“The Center is not just for graduating seniors,” says Robin Hammond, director, Engineering Career Center. “We offer a full spectrum of career planning from advising on degree program choices to job negotiation for new entrants to the job market, as well as resources for alumni who may be well into a career.”

“We also have strong relationships both well-established corporations and leading-edge start-up companies. Our goal is to foster successful matches of talent to enable a strong economic environment;” says Hammond.

Sun Devil CareerLink: connecting top candidates and companies

Sun Devil CareerLink provides students and alumni access to a nationally networked online system to post resumes and search for internships and jobs. The system is also a link to register for career fairs, access a network of career development professionals, research companies and participate in information sessions, and schedule on-campus interviews with prospective employers.

For employers, Sun Devil CareerLink is a convenient portal to post internship and job openings, search resumes and connect with our network of engineering students and alumni.

Internships: building engineers

The engineering internship program is an important part of Fulton Engineering's commitment to student success. Internships provide technically trained students with valuable real-world industry experience. In turn, employers gain highly skilled, motivated talent to fill short term or seasonal needs. Both the company and the student get to know each other and often interns become employees upon graduation.

Coaching: providing lifelong career skills

Through both scheduled and drop-in advising, engineering students and alumni have access to advice throughout their careers. Online presentation and webinar resources are also available.

The Career Center helps with career path planning, preparation of technical resumes and application letters, career fair strategies, job search techniques and interview skills, and salary negotiation. The Center is also a resource for graduate school application reviews.
William (Bill) Badger is retiring from the Ira A. Fulton Schools of Engineering this year, leaving a legacy of progress and innovation in construction education.

In his last lecture, Badger shared leadership wisdom—55 nuggets—with a crowded room of students, faculty, family, alumni, donors, advisors and friends. His book, The DNA of Leadership, is aimed at emerging professionals in the construction industry, but his insights are applicable to all.

Badger has served as professor in the Del E. Webb School of Construction for 25 years, including 17 years as the school’s director. His vision and commitment has helped ASU garner recognition as one of the top construction programs in the nation.

“Bill is a tireless advocate for engineering education and the construction industry,” says Paul Johnson, dean of the Ira A. Fulton Schools of Engineering. “He has helped build a phenomenal industry advisory board for our program. Through this leadership and vision, we have implemented a robust curriculum that prepares the future leaders of the construction industry.”

“I was honored to work with Bill as the president of his Industry Advisory Council for 17 years and very much appreciated his willingness to involve the construction industry and listen to our input to help improve the Del E. Webb School of Construction. I am proud to call him a friend and wish him well in this next chapter of his life,” says Doug Pruitt, chairman and chief executive officer, Sundt Construction.

Over the course of his tenure, Badger helped build many of the Del E. Webb School of Construction’s endowments and scholarships, including the $4 million endowment after which the school is now named.

Recently, Badger initiated a significant campaign to support the school. The director of the school uses the William W. Badger Endowment Award to support many advanced student projects as well as initiatives reflective of Badger’s own interests in leadership, recruiting women and minorities and building a strong pipeline for future faculty educators.

Prior to his work at Arizona State University, Badger had a distinguished 26-year career in the U.S. Army Corps of Engineers, serving in China, Vietnam, Saudi Arabia, Europe and the United States.

A registered Professional Engineer and member of the National Academy of Construction, Badger holds a doctoral degree in soil mechanics from Iowa State University, a master’s in civil engineering from Oklahoma State University and a bachelor’s in mechanical engineering from Auburn University.

Leaving a legacy

Continued Badger’s legacy and support the campaign to fund the future of construction education, please contact:

Michael Remedi
Director of Development
480-965-9056
michael.remedi@asu.edu
In 1967, William G. Dorey graduated from Arizona State University with a B.S. degree in construction engineering. Dorey returned to ASU in May 2011 to speak at the Ira A. Fulton Schools of Engineering spring convocation.

Dorey retired last August from a 42 year career with Granite Construction Incorporated, one of the largest heavy-civil contractors in the United States today. His successor is a 28-year veteran of the company. The top four operations people, like Dorey, joined the company right out of school.

Dorey notes that such loyalty is not unusual in the construction industry. In fact, his father was a Granite employee. He says he “felt like he grew up in the back of a Granite Construction pickup truck.”

In his first job with the company, he was in Monterrey in a small office that he describes as 70 feet square, gravel roof, lime green, swinging saloon doors and a bell that went off to announce visitors. He was greeted by the man who would become his mentor, Bob Atkins, who said, “Skippy, welcome to the Atkins school for boys.”

Dorey would follow Atkins to San Diego following an acquisition of a smaller company. Not long after, Atkins retired and Dorey took on managerial responsibilities at the age of 28.

“It was a time in my career when I didn’t know what I didn’t know,” he says. “But collectively we made it work.”

Granite Construction continued to grow as did Dorey’s responsibilities. Ultimately, he became president then chief executive officer. Under his leadership, the company employed nearly 6,000 people in any given season across the United States and achieved peak revenue of nearly $3 billion. He still serves as a director of the company.

“College trains you how to learn. You never have all of the knowledge that you need—and you don’t need to know it all. You just need to know how to find the answers,” Dorey says.

Dorey is also an active participant in the community. He is founding chairman, Construction Industry Ethics Compliance Initiative (CIECI) Steering Committee; trustee, Norman Y. Mineta International Institute for Surface Transportation Policy Studies; director, California Chamber of Commerce; director, California Business Roundtable; and president, White Rock Club.

Dorey has also served on the Construction Industry Round Table (CIRT), Cal Poly Dean’s Advisory Council, and the Caltrans/AGC Liaison Committee. He is a past director of TIC, Wilder Construction and Carmel Youth Baseball.

Dorey was honored for his work in the community by the Junior Achievement of Silicon Valley and Monterey Bay in 2009 and is an active supporter of the Boys and Girls Club of the Monterey Peninsula.

At convocation, Dorey contrasts the change that is happening in the world with underlying values that he believes should not change.

“Change today is faster and different. These graduates have the opportunity to change the world, not just here but the whole world. They will do that,” he says.

“But there are critical elements to the underlying human condition that we need to honor such as character and the value of people,” he says. Dorey hopes his stories inspire the 2011 graduates as they venture out as our future leaders.
As president of the Engineering Alumni Chapter, it is my pleasure to welcome the newest Ira A. Fulton Schools of Engineering alumni, the class of 2011.

I find that the “It’s Time” campaign grabbed my attention when it was launched recently. In my opinion, it’s been time for quite some time.

In just over 50 years, ASU has grown from a newly created university to the New American University, but it’s time for you to take it beyond these limits. It’s time that we recognize and embrace the fact that the Ira A. Fulton Schools of Engineering are in the same league as the finest engineering institutions in the world. While its beginning might be fairly inauspicious, the trajectory of accomplishments in levels of study, research and innovation are mind-boggling.

It’s time for our Alumni Association to become all that it can be and I hope that you give us your full support for a lifetime to come. It’s time not just to grow in number, but to grow in our participation and involvement of all that we represent.

It’s time for all alumni to get involved with some element of our alumni organization. It’s time for all of us to stay connected to each other and to Ira A. Fulton Schools of Engineering.

Congratulations, Class of 2011!

Rick Hudson
Engineering Alumni Chapter President
B.S. Electrical Engineering ’87
Principal Engineer, Line Maintenance
Salt River Project
Rick.Hudson@srpnet.com

Alumni Events
September 9, 7:30 a.m.
Engineering Alumni Chapter Fall Executive Committee/Board Meeting

September 17
Away Football Alumni Viewing Party (ASU vs Illinois)

October 29
Homecoming—ASU vs Colorado FIRST Lego League Competitions

September 10
Season Kickoff Event at Arizona State University, Tempe

December 3
Regional Qualifying Tournaments Statewide

December 10
State Championship Tournament at ASU, Tempe

Watch your inbox for updates about these events

August 2011
Fall Event for Transfer Students

September 2011
Freshman Career Night
Sun Devil Generations Carnival

E2 Camp

<table>
<thead>
<tr>
<th>Camp Dates</th>
<th>Dinner and Awards Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 28–30</td>
<td>July 29</td>
</tr>
<tr>
<td>July 30–August 1</td>
<td>July 31</td>
</tr>
<tr>
<td>August 1–3</td>
<td>August 2</td>
</tr>
<tr>
<td>August 3–5</td>
<td>August 4</td>
</tr>
<tr>
<td>August 5–7</td>
<td>August 6</td>
</tr>
<tr>
<td>August 19–21 (Out-of-state students)</td>
<td>August 20</td>
</tr>
</tbody>
</table>

Save these dates!
Stay connected with Fulton Engineering and your engineering professors by attending the Dean’s Lecture Series. Speakers will be announced in the fall.

November 18, 2011
February 2, 2012
March 15, 2012
April 26, 2012
According to Daniel Jankowski, a professor in the College of Engineering and Applied Sciences (now the Ira A. Fulton Schools of Engineering) for 40 years until his retirement in 2004, “I was tough on students; demanding. I wanted to make it challenging.”

His students called him Jaws, and some of them likely still jump at the sight of a 3 x 5 note card. He was notorious for his use of such cards, each bearing the name of an individual student. Pausing regularly during his classes, he chose, from the top of his stack of cards, a student to provide some “wisdom” relative to a question he posed. Say something relevant and your card went to the bottom of the stack. An “unreasonable” response caused your card to disappear into a random position in the stack, ensuring you another opportunity, maybe soon.

Jankowski says he wanted to be sure that everyone had “a chance to excel.”

Despite these anxious moments, there is nearly universal agreement that he had a profound effect on his students, their education and their success in future endeavors.

Roger Stout, a mechanical engineering graduate from 1977, said this in a letter to Jankowski recounting his ASU experience: “You taught me the benefits of discipline in my approach to engineering and technology. You demonstrated a deep commitment to the ‘profession’ of engineering, a passion for the material and compassion for those who came to really learn. And certainly not least, you showed us that when approaching even the most serious and challenging subject matter, a little humor can be tolerated.”

In 2001, the Engineering started an endowment to honor Jankowski’s legacy and his activities in research, teaching and service. Awarded only every two years, the Daniel Jankowski Legacy Award is one of the Fulton Engineering’s highest faculty honors. A faculty committee selects recipients, who are recognized for sustained, exemplary commitment to student success across research, teaching and service.

Consistent with Jankowski’s own philosophy, the award places a particular emphasis on a strong academic component including student support, quality instruction and program development.

During his tenure at ASU, Jankowski served as associate dean of academic affairs for six years, leaving the position in 2001. He served as interim dean of the College of Engineering and Applied Sciences for one year. Later, he coordinated the university’s 2003 accreditation process.

Jankowski says his goal was “to make the university a better place.”

At the back of a book prepared for Jankowski filled with copies of letters from faculty and university leaders, comments from students (on 3 x 5 note cards) and other memorabilia, there is a poem entitled The Bridge Builder, by Will Allen Dromgoole.

Jankowski says the poem is fitting because “it is about a person who helps others coming after him. That’s what a teacher does.”

Today, Professor Jankowski can still be found on campus working on a textbook for fluid mechanics.
Daniel Jankowski Legacy Award Winners

2011 James Collofello
Associate Dean, Professor, School of Computing, Informatics, and Decision Systems Engineering

James Collofello joined ASU in 1979 and was instrumental in the start of the computer science degree program. Collofello’s research interests lie in the software engineering area, with a primary emphasis on software process modeling, software quality assurance and software project management. Collofello serves as the Associate Dean of Academic Affairs for the Ira A. Fulton School of Engineering. He is also coordinating the software engineering distance learning program.

Throughout his entire career, he has maintained a close relationship with software development firms in the state working on joint research projects, developing industry training programs and serving as a software engineering consultant. He is also very active in software engineering education projects and outreach to local high schools.

Previous Honorees

2009 James Adams
President’s Professor, School for Engineering of Matter, Transport and Energy

2007 Joseph Palais
Professor, School of Electrical, Computer and Energy Engineering

James Collofello, the 2011 recipient of the Daniel Jankowski Legacy Award
Transcending the traditional

Society’s needs are changing. To produce the engineers and innovations essential to address these needs, engineering schools must move beyond their traditional disciplinary driven cultures, programs and organizations. Many schools talk about this, but we are doing it, as reflected by our organization, the opportunities we provide for our students, the graduates that we produce, the faculty that we attract and the impact of our research programs.

Focusing on the student experience

Students require more than traditional coursework to be competitive and successful in their engineering careers. Our students pursue degree programs having both strong disciplinary foundations and cross-disciplinary thematic focus opportunities (e.g., energy, sustainability, healthcare). Experiential opportunities—internships, research, student organizations and community service—are integral components of the overall student experience. In combination, these lead to graduates who are uniquely prepared for a diverse range of careers and are highly attractive to employers.

Focusing on student success

E2 Camp, our innovative orientation required for new freshmen, together with personalized advising, the engineering residential community, engineering tutoring services and our engineering career center reflect our commitment to the success and retention of our students. About 90 percent of our incoming freshmen are retained within the university.
Leading use-inspired research

Energy, healthcare, sustainability, exploration, education and security are our research emphasis areas, with more than 1,000 faculty and students generating discoveries, innovations and inventions needed to solve society’s challenges in these areas.

We attract top faculty

We attract faculty who are dedicated to student success, embrace change, pursue transdisciplinary collaborations, and measure the success of their research and professional activities by the impact they have locally and globally. Many faculty have received top recognitions in their fields.

Inspiring future engineers

Through collaborations with Arizona’s K–12 teachers, education leaders and ASU engineering faculty and student organizations, the Ira A. Fulton Schools of Engineering offer a full spectrum of creative programming and activities designed to inspire young minds to pursue engineering, thereby creating a pipeline of students to fill the ever increasing need for engineers.

ARIZONA STATE UNIVERSITY: THE NEW AMERICAN UNIVERSITY

Arizona State University is an institution committed to excellence, access and impact—a new gold standard for the American research university. The New American University is ASU’s vision for transforming higher education.

http://newamericanuniversity.asu.edu
FRONT COVER: Graduating seniors participate in capstone projects, which are often the culmination of previous research. Industry partners may supply materials or challenges for the seniors’ design projects. Learn more about senior capstone projects on page 18.

BACK COVER: Freshmen learn the engineering design process, engineering models and critical communication skills during one of their first classes which includes building a final project. Learn more about eSpace, the new prototyping studio on page 8.