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Cover image: a modified version of a cover of The Arkansas Engineer student magazine. This issue was published in May, 1938.

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O n June 30, Dr. Ashok Saxena stepped down as dean of the College of Engineering in order to take a new position as vice chancellor of Galgotias University, a new private, multidisciplinary research university near Delhi, India.

Though Dr. Saxena will be missed, the college is grateful for the legacy he leaves behind: soaring enrollments, innovative programs such as the Freshman Engineering Program and the Engineering Career Awareness Program, a nationally competitive faculty and a brand new department of biomedical engineering. After he completes his two year term, we look forward to welcoming Dr. Saxena back as a faculty member in the department of mechanical engineering.

The University will be conducting a dean’s search over the next year and it is our goal to have the new dean in place in the fall of 2013. More information can be found on our website, engr.uark.edu.

As interim dean, I am proud to lead the college during this next year. As a native Arkansan, an alumnus of the University of Arkansas and a member of the engineering faculty since 1983, I am pleased to be able to serve my university in this new role. Over the past eight years I have worked closely with Dean Saxena in the position of associate dean to address the opportunities and challenges in providing an engineering program of excellence for our students.

I am also looking forward to this opportunity to get to know the alumni and friends of the College of Engineering. I encourage you to catch up with the college at our Homecoming Open House on November 3, and at the Alumni Awards Banquet in the spring.

In this issue of the magazine, we celebrate the history of the college, and I invite you to help us celebrate our future. In addition to another record-breaking class of freshman, we are welcoming eight new faculty members this year, including two new members of the biomedical engineering department. The college is growing rapidly, in both size and reputation, and now is a great time to show your support and help us move into a new era.

Warm Regards,

Terry Martin

Interim Dean of Engineering
Professor of Electrical Engineering

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**The Accomplishments of Dean Ashok Saxena**

By John A. White

Though we are all very happy for Dean Saxena, the university and the College of Engineering already miss him. In the nine years he was dean, Saxena used his insight and leadership skills to accomplish great things, many of which are listed below.

In addition to the accomplishments resulting from his leadership of the college, Saxena modeled what he expected from the faculty in teaching, research, and service. Saxena continued to teach, direct graduate student research, publish his research, and serve the profession. Internationally renowned for his research contributions in time-dependent fracture mechanics, Saxena’s research resulted in new standards being established by the American Society for Testing and Materials. His awards and recognitions in the past 8 years included the Wohler Fatigue Medal (2010) from the European Structural Integrity Society, Fracture Mechanics Medal (2009) from the Committee E08 of ASTM International, election to the Fellowship of the International Congress on Fracture (2009) and a Best Paper Award at the Twelfth International Congress on Fracture (2009).

Saxena will be remembered most for elevating the sights of all who are associated with the college—faculty, staff, students, and alumni. In just nine years, he truly transformed the college.

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• Richard Cassady and Manuel Rossetti, both professors of industrial engineering, have been named fellows by the Institute of Industrial Engineers. Cassady has taught at the University of Arkansas since 2000, and his teaching and research focus on reliability and maintainability engineering, statistical quality control, operations research and probability and statistics. Rossetti is the holder of the John L. Imhoff Chair in Industrial Engineering. He teaches courses in the areas of probability modeling, discrete event simulation, object-oriented and database systems, transportation/logistics modeling, and inventory modeling.

• Brady Cox, assistant professor of civil engineering, has been named by President Barack Obama as one of 96 recipients of the Presidential Early Career Awards for Scientists and Engineers. The award is the highest honor bestowed by the U.S. Government on science and engineering professionals in the early stages of their independent research careers.

• Ajay Malshe, Distinguished Professor and Twenty-First Century Endowed Chair in Materials, Manufacturing and Integrated Systems, has been selected as a fellow of ASM International, formerly known as the American Society for Metals. Malshe is recognized worldwide for his fundamental and applied contributions to the fields of nanotechnology, electronics packaging and materials surface engineering.

• Kim Needy, head of the department of industrial engineering and holder of the Twenty-First Century Professorship in Engineering, was recently listed president-elect of the Institute of Industrial Engineers. Needy is recognized for her passion as a professor and her dedication to the Institute of Industrial Engineers, a professional society that helps advance and promote the industrial engineering profession.

• Roy Penney and Tom Spicer, both professors of chemical engineering, have been named fellows by the American Institute of Chemical Engineers. Penney’s work at the university focuses on industrial mixing research and development, and he recently received the Award for Excellence and Sustained Contributions to Mixing Research and Practice from the North American Mixing Forum. Spicer holds the Ralph E. Martin Endowed Leadership Chair in Chemical Engineering, and served as head of the Ralph E. Martin department of chemical engineering from 2001-2012. Spicer’s research interests include the assessment of hazards from airborne contaminants, as well as hazards from fire and explosion phenomena.

• Ronald L. Rardin, Distinguished Professor of industrial engineering, is the 2012 recipient of the David F. Baker Distinguished Research Award from the Institute of Industrial Engineers. Rardin is the holder of the John and Mary Lib White Endowed Systems Integration Chair in Industrial Engineering. He also heads the Center on Innovation in Healthcare Logistics.

• Fisher Yu has been awarded the Faculty Early Career Development award, also known as the CAREER award, by the National Science Foundation. Yu is an assistant professor in the department of electrical engineering. This grant will provide $400,000 over five years, to fund Yu’s research of bismuth, a relatively unexplored material system.

• Kartik Balachandran received a Ph.D. in bioengineering and a M.S. in mechanical engineering from the Georgia Institute of Technology and a B.A. in engineering from the National University of Singapore. Previously, Balachandran was a postdoctoral fellow at Harvard University’s Wyss Institute for Biologically Inspired Engineering. His primary research interests are in mechanics, mechanobiology and tissue engineering.

• Michael Gashler has a Ph.D. in computer science and a B.S. in computer science from the University of Washington. He was a postdoctoral fellow at Microsoft Research and has also worked at the U.S. Department of Energy. Gashler’s primary research interest is machine learning, and he is particularly interested in applications in large-scale and complex systems.

• David Jensen earned a Ph.D., M.S. and B.S. in mechanical engineering from Oregon State University. His research focuses on incorporating safety into the design of complex systems such as power plants and spacecraft. He focuses on the early stages of design, and looks at ways to include risk assessment in this phase of the process in order to prevent accidents.

• Timothy Muldoon has an M.D. from Baylor College of Medicine, a Ph.D. in bioengineering from Rice University and a B.S. in biomedical engineering from Johns Hopkins University. He comes here from Columbia University, where he was a postdoctoral research scientist. Muldoon’s research has focused on high-speed and high-sensitivity optical imaging.

• Matthew Patitz holds a Ph.D., an M.S. and a B.S. in computer science from Iowa State University. He comes to the University of Arkansas from the University of Texas Pan American, where he was an assistant professor of computer science. He has also worked at the Software Engineering and Engineering Education Team at Intel. Patitz has authored a number of publications in the field of self-assembly, and he has developed several software packages to support research in this area.

• Kelly Sullivan has a Ph.D. in industrial and systems engineering from the University of Maryland and an M.S. and B.S. in industrial engineering from the University of Arkansas. Her research interests include network optimization and interdiction, integer programming, large-scale optimization, robust optimization, defense applications and optimization in sports.

• Tingxin Yan received a Ph.D. in computer science from the University of Massachusetts at Amherst, an M.S. in computer engineering from the Chinese Academy of Sciences Institute of Software and a B.S. in computer engineering from Nanking University. His research interests are primarily in the areas of mobile and embedded systems, wireless sensor networks, distributed computing, and crowdsourcing.

• Jing Yang received a Ph.D. in electrical and computer engineering from the University of Maryland and a B.S. in electrical engineering and information science from the University of Science and Technology of China. Her research interests include information and network theoretical aspects of data harvesting communication networks; wireless communication theory and networking; service scheduling and energy management in large-scale systems; and high dimensional graph structure learning and its applications to wireless, biological and social networks.
McMullen Appointed AHPCC Director

Rick McMullen, former director of research computing at the University of Kansas, has been appointed director of the Arkansas High Performance Computing Center.

In addition to his primary academic and administrative positions at the University of Kansas, McMullen has served as a research associate at the university’s Biodiversity Institute. He is also senior research associate with the Great Plains Network, a large consortium of Midwestern universities, of which the University of Arkansas is a member.

Energy Conservation Center Unveils Outreach Vehicle

A converted Winnebago is the newest, and perhaps most unusual, addition to the University of Arkansas vehicle fleet. It’s called the GREEN Mobile Solar Energy Laboratory and it is taking to the Arkansas highways to bring hands-on solar energy experiments to schools and public events across the state.

The mobile laboratory is housed in a converted 33-foot Winnebago and uses a conventional gasoline engine to get around. But it is equipped with six 250-watt solar panels that can power the lab’s equipment, computers, television and other features for two hours at a time.

The mobile lab is the latest addition to an outreach program with a goal of exposing Arkansas students to fun and interactive projects in the science, technology, engineering and mathematics (STEM) fields.

Engineering Career Awareness Program Recognized

The Engineering Career Awareness Program, or ECAP, continues to receive accolades from national education and engineering organizations.

In April, ECAP was selected by the National Academy of Engineering to be one of 29 undergraduate engineering programs featured in its Real World Engineering Education publication. ECAP is among 29 undergraduate engineering programs that, according to the NAE, “have successfully infused real world experiences into engineering or engineering technology undergraduate education.”

The idea for ECAP originated with College of Engineering alumnus Troy Alley in 2007. The program is designed to recruit underrepresented engineering students with financial need, and to give these students the support they need to graduate and begin their careers. ECAP provides financial assistance, a summer bridge program and a network of academic and social support opportunities.

University of Arkansas College of Engineering Welcomes Its Largest and Most Diverse Class

The University of Arkansas College of Engineering continues to grow. Recruitment and retention efforts have led to the largest engineering enrollment in the history of the College of Engineering with 2,726 undergraduates currently enrolled. This is a 73 percent increase since 2007.

This year, the college welcomed another record-breaking 775 new freshmen, an increase of almost 12 percent over last year’s record, and more than double the number of new freshmen entering the college five years ago.

The number of female freshmen has increased by 33 percent. Since 2007, the number of undergraduate female students in the College of Engineering has more than doubled.

The number of new African American freshmen has increased by 30 percent. Over the past five years, the number of new African American freshmen has increased by 306 percent, from 16 to 64, and the total percentage of engineering students from an ethnic minority has increased by over 40 percent.

Minority students now make up a fifth of the college’s undergraduate student population.

Data show that the retention and graduation rates for the College of Engineering are also improving, thanks to the innovative Freshman Engineering Program, which provides guidance and resources to new engineering students.

Richard Cassady, director of the program, explained that the number of students who return for their sophomore year has risen from an average of 61 percent to an average of 70 percent, and this gain has remained steady even in the face of skyrocketing enrollment.

The combined increases in enrollment and retention have yielded a sophomore class in the college that is twice as large as the average sophomore class before the Freshman Engineering Program.
New Patent Improves Speed of DNA Analysis

Donald K. Roper, associate professor of chemical engineering and holder of the Charles W. Oxford Endowed Professorship in Emerging Technologies, has patented a process that reduces the time it takes to perform DNA analysis from hours to minutes. Roper’s process, which he developed while working at the University of Utah, uses gold nanoparticles to increase the efficiency of the polymerase chain reaction.

Researchers Discover New Method of Making Nanoparticles

Roper and his colleagues at the University of Utah have discovered a new method of making nanoparticles and nanofilms to be used in developing better electronic devices, biosensors and certain types of microscopes. The researchers’ nanoparticles are nontoxic and inexpensive to make, and have superior dimensions, densities and distribution when compared to other nanoparticles and nanofilms to be used in research. The purchase is possible thanks to a grant of $200,000 from the Department of Defense and an additional $50,000 from the University of Arkansas.

Optoelectronics Research Lab Receives Grant for High-Resolution Microscope

With little more than basic information about Web users’ behavior — that is, the hyperlinks they click on daily and the content at those sites — Susan Gauch can build a better search engine. In information systems research, this work is known as “implicit” user profiling, meaning there are basic assumptions about user interest and intent based on the sites they frequent and the content they view.

Omar Manasreh, who runs the lab, will now be able to add a new piece of equipment for researchers: a micro-photoluminescence/Raman high-resolution microscope. The purchase is possible thanks to a grant of $200,000 from the Department of Defense and an additional $50,000 from the University of Utah.

Researchers Develop Personalized Search Engines

Omar Manasreh

The new lab instrument will be used to help characterize and test semiconductor nanocrystals, metallic nanoparticles and semiconductor nanostructures known as quantum dots. Once a material’s properties are determined, its applications and potential uses can be developed.

Manasreh and researchers in the Optoelectronics Research Lab have developed new materials that will enable greater efficiency of photovoltaic cells in solar arrays. Currently, the light-to-energy capabilities for solar arrays deployed on spacecraft and the International Space Station are topped out at 23 percent. However, new materials such as metallic nanoparticles can significantly increase that ratio, allowing longer and more far reaching missions.

Engineers Develop Sensors that Monitor Cardiac Signs and Work with Smart Phones

The Optoelectronics Research Lab in the College of Engineering looks at things like no other lab on campus. The lab uses high-tech instruments to investigate new nanoparticles capable of harnessing the powerful energy of the sun.

The system will function as an “overlay” on top of stable content, including news, blogs, scientific articles, books, terms of service, ballot initiatives, legislation and regulations, software code and more. Gauch holds the Rodger S. Kline Endowed Chair in Computer Science and Computer Engineering.

Vijay Varadan

The system monitors blood pressure, body temperature, respiratory rate, oxygen consumption, some neural activity and all the readings provided by a conventional electrocardiograph (ECG). The system does not require a cuff or any extra accessories to measure blood pressure and could therefore replace conventional blood-pressure monitors. It could also replace the cumbersome combination of ECG sensors and wires attached to patients while they walk on treadmills.

A team of engineers at the U of A has developed a wireless health-monitoring system that gathers patient information and communicates that information in real time to a physician, hospital or the patient herself.

Vijay Varadan, Distinguished Professor of electrical engineering, explained that the system includes a series of nanostructured textile sensors integrated into a sports bra for women and vest for men. Via a lightweight and wireless module that snaps onto these garments, the sensors communicate with system software that relies on a smartphone to collect information, compress it and send it over a variety of wireless networks.

The textile sensors are woven into the fabric, as well as flexible, conducting textile wires attached to patients while they walk on treadmills.

The sensors, which are smaller than a dime, include gold nanowires, as well as flexible, conducting textile nanosensors. The sensors are made of arrays of gold nano-electrodes fabricated on a flexible substrate. The textile sensors are woven into the bra material. These sensors do not require conventional sticky electrodes or the use of gel.

Electrical signals and other physiological data gathered by the sensors are sent to the smartphone. As the critical wireless component, the module is essentially a tiny, low-powered laptop computer that includes an amplifier, an antenna, a printed circuit board, a microprocessor, a Bluetooth module, a battery and various sensors. Varadan said that anticipated battery and Bluetooth upgrades will allow the researchers to build a smaller, lighter and flexible module that will replace the rigid box.

Data from the sensors then stream to commercially available cell phones and handheld devices, which expand the use of the system beyond health care. By carrying a cell phone, athletes can monitor all signs mentioned above and other metrics, such as number of calories burned during a workout. To render clean data, the software includes filtering algorithms to mitigate problems due to motion of the hand-held device during exercise.

Varadan holds the College of Engineering’s Twenty-First Century Endowed Chair in Nano, Bio and Medical Technologies.
One hundred and fifty years ago, the Morrill Land-Grant Act was signed into law by President Lincoln. This act allowed the states to set up universities by providing federal land for these institutions. The University of Arkansas, which held its first classes in 1872, is one of these land-grant institutions. Until 1899, the school was known as the Arkansas Industrial University, and the engineering department was an important part of the university from early days.

One hundred years ago, in 1912, the College of Engineering, along with the College of Education and Health Professions, separated from the College of Arts and Sciences and appointed its own dean. William Gladson, who had taught engineering since 1894, became the first dean of the new College of Engineering.

Over the past century, the university and the college have made great strides, making their way into the top tiers of education in this country. In this issue of the magazine, we’re looking back at life in the past, and at how the engineering student experience has changed. The print issue focuses on two important aspects of student life in the College of Engineering: the changing role of women in the college and the celebration of Engineer’s Day, an event that showcased the best (and sometimes the worst) of engineering student achievements.

For more articles, see our online magazine.
The Morrill Act, or Land Grant Act, provided federal land that states could use to establish universities. It was signed into law by Abraham Lincoln.

**1862**

Arkansas Governor O.A. Hadley signed an act into law, creating the Arkansas Industrial University.

**1871**

University Hall (now called Old Main) completed.

**1872**

The first students graduated from the Arkansas Industrial University.

**1875**

The first civil engineering degree was awarded.

**1876**

The first mechanical engineering degree was awarded.

**1877**

The department of mechanical arts was divided into civil, electrical and mechanical engineering departments.

**1879**

University Hall (now called Old Main) completed.

**1888**

The first civil engineering degree was awarded.

**1889**

Arkansas industrial University opens its doors with eight students and three faculty members. By the end of the term, however, over 100 students had enrolled. Engineering was taught in the department of mechanical arts.

**1891**

The departments of agricultural engineering and industrial engineering were established.

**1894**

The first master’s degree in engineering was awarded.

**1897**

Loren R. Heiple became the fourth dean of the College of Engineering.

**1903**

George P. Stocker became the second dean of the College of Engineering.

**1909**

The Arkansas Industrial University changed its name to the University of Arkansas.

**1910**

George F. Branigan became the third dean.

**1912**

First edition of The Arkansas Engineer published by engineering students.

**1920**

Terry Martin became interim dean of the College of Engineering.

**1922**

The Bell Engineering Center was formally dedicated.

**1927**

The Bell Engineering Center was established by the state legislature to investigate and study engineering problems of general interest to Arkansas.

**1928**

The present Engineering Hall was completed.

**1936**

The first master’s degree in engineering was awarded.

**1937**

Chemical engineering became a part of the College of Engineering.

**1945**

The first doctorate in engineering was awarded.

**1946**

Otto J. Lover became the seventh dean of the College of Engineering.

**1951**

The Walton Family Charitable Support Foundation gave the University of Arkansas a $300 million challenge gift.

**1952**

A Master of Science degree in biomedical engineering was approved.

**1958**

The Walton Engineering Extension Center was developed to provide continuing education opportunities to practicing engineers.

**1964**

A Doctor of Philosophy degree was approved.

**1972**

The mechanical engineering department moved into a new building.

**1975**

The Master of Science degree in microelectronics and photonics was established.

**1976**

The departments of agricultural engineering and industrial engineering were established.

**1979**

The departments of computer systems engineering and computer science merged, creating the department of computer science and computer engineering.

**1982**

A Master of Science degree in biomedical engineering was approved.

**1983**

Neil M. Schmitt became the sixth dean of the College of Engineering.

**1985**

Computer science engineering became a separate department.

**1987**

The Bell Engineering Center was formally dedicated.

**1991**

The name of the computer science engineering department was changed to computer systems engineering.

**1995**

The first engineering Hall was constructed at a cost of $25,000.

**1996**

First engineer’s Day celebrated on the University of Arkansas campus.

**2000**

The first doctorate in engineering was awarded.

**2005**

A computer science engineering program was initiated within the industrial engineering department.

**2012**

Historic engineering Hall was renamed the John A. White Jr. engineering Hall, in honor of the former University of Arkansas chancellor.
In the middle of a spring night in the 1940s, several engineering “knights” steal across the lawn in front of University Hall. They are carrying cans of green paint, specially formulated in a chemical engineering lab. They are heading for the Agriculture Building. The building looks dark and empty, but the engineers are cautious. When they are about 30 feet away, they pause to remove the lids from the cans and dip their brushes. Green paint dripping, they dash toward the building. They have almost reached it when the counter attack begins. Smelly brown globs the consistency of mud shoot from a window in the upper floor, splattering on the ground and covering the engineers in foul-smelling goop. The agriculture students have engaged their manure spreader. Wiping the dung from their faces, the engineers persevere and quickly paint several large green shamrocks on the front of the building. Thanks to the ingenuity of the chemical engineering students, the paint will be impossible to wash off, and will have to be sanded from the walls. Their mission complete, the engineering students run back across the lawn, dodging the last efforts of the manure spreader. Engineer’s Day has officially begun.

History
Beginning in 1909, the University of Arkansas College of Engineering set aside a day to celebrate several things: St. Patrick’s day, the field of engineering and the glory of being a young college student with a day free from classes. The association of St. Patrick with engineering students began in 1903 at the University of Missouri in Columbia. Like every good tradition, this one has more than one explanation. In one version, a class discussion leads to the conclusion that “St. Patrick was an engineer, of course,” and that the following St. Patrick’s day should be set aside for revelry, to the dismay of the Missouri faculty. The other story is more fanciful. The website of the University of Missouri explains that "According to engineering tradition, the discovery that St. Patrick was an engineer began with the excavations for the Engineering Annex Building. During the excavation, a stone was unearthed with a message in an ancient language. This message was translated into “Erin Go Bragh.” Although those of Irish descent may recognize “Erin Go Bragh” as “Ireland Forever,” the engineers loosely translated this phrase as, “St. Patrick was an engineer.” The stone, now known as the Blarney Stone, is an integral part of the St. Pat festivities. The engineers looked to the legend that St. Patrick drove the snakes out of Ireland as proof of his engineering skills. They further credit St. Patrick with the invention of calculus.

Whatever the explanation, the tradition of Engineer’s Day spread to Arkansas several years later, and eventually made its way into colleges across the nation. By the sixties, Engineer’s Day at the University of Arkansas had blossomed into an entire week of engineering and revelry. The engineers showed off their skills in other aspects of the celebration, as well. In addition to the non-washable paint, Colonel William Myers, an alumnus and former faculty member in the chemical engineering department, remembers another yearly triumph of the engineers. Where the science building is now in those days was the engineering shop and power plants. All engineers had courses in foundry work and blacksmithing. There was a big steel silver chimney.

Events
Engineer’s Day traditionally presented a balance of academic and entertaining activities. From the beginning, the holiday included lab tours and engineering demonstrations. In 1929, The Arkansas Engineer provides a list of engineering marvels for that year. The electrical engineers exhibited “automatic motors started by voice and heat, reversing motors, rainbow wheels, Tesla coil, arc lights, high voltage and current transformers, mystic drums and lights, and a bowling alley,” while the mechanical engineers had a small replica of a steam turbine and “mysterious balloons, gyroscopes and frozen suckers.” The civil engineering department displayed “miniature roads, hydroelectric plants and a magic fountain. Also testing of road material, of cement briquettes, of steel, wood, concrete and copper columns and the measurement of the flow of water by Peiot tubes and Venturi meters.” The engineers showed off their skills in other aspects of the celebration, as well. In addition to the non-washable paint, Colonel William Myers, an alumnus and former faculty member in the chemical engineering department, remembers another yearly triumph of the engineers.

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A few days before the Engineers Day, every year, by some mysterious means there would be a large green shamrock five feet wide painted across the top. The chimney was at least a hundred feet tall. A few days after, the physical plant would paint it over, and it was a major operation. They would have a crane and chains and ropes and five people and it would take them all day. But it always appeared as if by magic.

The most popular exhibition of the twenties was something called the Bucking Ford, which, according to the student magazine, "did just what the name signifies."

During the forties, the engineering students put on a fireworks display for the whole town, which Myers called "the best in Northwest Arkansas."

Throughout the years, the celebration also featured banquets, a tug of war against the College of Agriculture, basketball games, a beard-growing contest, a dance, and the presentation of the Chicken Award. According to The Arkansas Engineer, the Chicken Award ceremony "is where a few brave students present 'awards' to professor in various departments who have gained a certain measure of 'renown' for deeds above and beyond the call of duty."

Robert Babcock, professor of chemical engineering, has observed the Chicken award presentation, and admits that he always suspected the recognition was a little tongue-in-cheek.

The cornerstone of the celebration was a rally where Robert Babcock, professor of chemical engineering, had observed the Chicken award presentation, and admits that he always suspected the recognition was a little tongue-in-cheek.

The committee resolved to limit pranks to painting on sidewalks with washable paint, and the celebrations were allowed to continue.

Engine Week Today

Engineer’s Day, now usually referred to as Engine Week, continues to this day in the College of Engineering, but after the feminist movement of the seventies, the fading importance of St. Patrick and the eventual death of the engineering/agriculture feud, it is a very different event. The St. Patricia photo spreads ended with the sixties, and in 1979, Anne Lynch, the editor of the student magazine, pointed out that St. Ferdinand III, not St. Patrick, is the official patron saint of engineering. Shamrock painting, washable or not, is now a thing of the past.

The current version of the celebration features wholesome fun and educational activities, and often Engine Week coincides with National Engineers Week. In 2011, the event featured speakers on nuclear safety systems and spacewalking, several sports contests, tailgating, an engineering trivia contest, a picnic and the "Flying Egg Crash Lander," a contest in which students compete as equals. One thing remains the same, however: our engineering students are proud of their community and their accomplishments, and they know these things are worth celebrating.
It’s a Man’s World

Women in the College of Engineering

By April Robertson

Pursuing Her Passion

Betty Yantis worked to put herself through school because her father was staunchly opposed to women attending college. In 1958, she was the only female graduate from the College of Engineering, but two other ladies would graduate in the next few years. Yantis went on to the University of Texas in Austin, Texas A&M in Arlington and Corpus Christi University, where she earned master’s degrees in civil engineering and economics, as well as a Ph.D. in economics. She said everywhere she went she found the same attitudes toward women in engineering: not welcome.

By the time she had earned her degrees, Yantis was simply used to it. From high school science and math classes to working as a draftsman in the engineering side of AT&T and even working for the City Engineer, she had been the only woman in all her work settings.

“It was not a big problem,” in work settings, she said, but some of her professors discouraged her pursuits. “They let me know both privately and in class that they did not want me there or even in the field of engineering.”

Top of Her Class

Marilyn McEver Head was the only woman in the class of 1959 and she graduated as the top-ranking student that year. Only six out of 1000 American engineering students were female at that time. Head went to a polytechnic college for the first two years of her college experience and was spurred by the achievements and education of her family.

“My only male cousins were chemical majors,” she said. “We were competitive, and I thought to myself, ‘If you can do it, I can do it.’”

Gaining Momentum

By 1961, six girls were enrolled in the U of A College of Engineering and another six women were alumni. The current dean of the college at the time, Dean Brangan, wrote an editorial on a Society of Women Engineers
Modern Female Engineers

While women are still a minority in the college as a whole, they are always well-represented in the pool of high-achieving students. Recently, biological engineering graduate Abigail Washispack has exemplified what women can achieve in the college. Washispack earned her biological/biosystems engineering degree from the college in 2012 while working with professor David Zaharoff to rally student support for the burgeoning biomedical engineering program. In November of 2011, she shared her research findings on nanomaterials for biomedical applications with the Biomedical Engineering Society Annual Meeting in Connecticut. Washispack now attends the Medical University of South Carolina. These days, female students get plenty of support from several student organizations, which can help them prepare for the competitive and challenging industry. The Society of Women Engineers, Women in Engineering, Phi Sigma Rho and Engineers Without Borders are popular choices for these ladies.

The Society of Women Engineers was founded in 1950 and came to the U of A campus in 1975. The local chapter has a mission to “encourage female engineers to define themselves without intimidation, through networking and with a key focus on highlighting female contribution to the engineering field with a diverse touch.” Students in this organization find a strong, welcoming sense of community with people who have a similar vantage point. They spend weekends together, working through class assignments and coordinating fundraisers that lead to national conferences, a major step in their professional development. SWE is closely linked to Women in Engineering, which has similar activities for young professional women. The two organizations meet together a couple of times a year, when WIE members make time to speak on a panel about their experiences in the industry and prepare students for what is coming next. Many job, internship and co-op opportunities develop this way and foster strong mentoring relationships.

Phi Sigma Rho is a social organization for women in technical majors. Members enjoy dinners and weekend trips as a group. They help each other with homework and weather the job search process together. The U of A chapter is one of the very few in the South. The building of a more gender-balanced community and weather the job search process together. The U of A chapter is one of the very few in the South. The building of a more gender-balanced community.

The A University of Arkansas Family Gives Back

Larry Stephens and his wife, Gwen, of Hot Springs have been giving to the University of Arkansas for 34 consecutive years, which makes them the longest continual donors to the University. Larry and Gwen consider the University of Arkansas to be their home away from home.

“We are a University of Arkansas family,” said Larry, a 1958 graduate of the College of Engineering. “Both of our children graduated from the university, and we are all connected in business and personal relationships to friends we met during our time there. The campus is a fun place to be at any time of the year, but more specifically, the university gave us a good education that makes us want to give something back in return.”

The Stephens want their gifts to assist with educational opportunities for engineering students, whether in the form of scholarships, lab equipment or instructor salaries. They want the university and the college to grow its reputation across the nation and around the world, all the while providing students with the best education possible so they are able to secure high-quality job opportunities after graduation. “All of my memories of the university are fond,” Larry said. “From the fraternity house life, to the things I learned in the classroom, the impact of the university is significant.”

As student enrollment continues to increase, private gift support is more important than ever in the College of Engineering. Scholarship support, student competitions, classroom improvements, technology upgrades and strategic support for up-and-coming faculty all require strong annual support to ensure the success of our students and faculty. Simply put, gifts through the University of Arkansas Annual Fund directly support engineering students now. Every dollar counts and is put to immediate use. Please visit online giving.uark.edu and make your gift today.

News From Our Alumni

Carl Yates (BSCE 1958) has been awarded the Lifetime Achievement Award from the American Council of Engineering Companies of Arkansas (ACEC/A). Yates is the chief executive officer for the Fayetteville engineering firm McGoodwin, Williams & Yates, Inc.

Randy McNulty (BSCE 1965) has been selected for the Arkansas Construction Hall of Fame. McNulty is the founder of Southern Pavers.

Robert Hart (BSCE 1977, MSCE 1981) recently elected to the AWWA WEA Glen T. Kellogg Water and Wastewater Hall of Fame. Hart is the technical services officer at Central Arkansas Water.

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For more alumni news, see our online edition: arkansasengineer.uark.edu

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“We are most familiar with the leadership in the College of Engineering and the advancements that have been made there the past few years,” he continued. “This kind of progress can only be made with financial support, large or small, from our alumni.”

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2012 Alumni Awards Banquet

In April, the college recognized 18 alumni for their contributions to their communities, to the field of engineering and to their alma mater.
Then and Now

Biological and Agricultural Engineering
THEN: In the 1950s, the U of A yearbook proclaimed that the machine age was “here at last,” thanks to the adoption of typewriters.
NOW: In the information age, students expect machines to do much, much more than put words on paper.

Biomedical Engineering
THEN: Although the medical field has always relied on engineering breakthroughs, biomedical engineering didn’t emerge as an academic program until the second half of the 20th century.
NOW: Many researchers in the college have focused on medical applications. In 2012, the U of A created a department of biomedical engineering, which currently has more than 100 students.

Chemical Engineering
THEN: A chemical engineering laboratory in 1915.
NOW: Doctoral student Ellen Brune is taking her research from the lab to the marketplace. Her company, Boston Mountain Biotech, LLC, has seen numerous small business competitions.

Civil Engineering
THEN: Around the time the university awarded its first civil engineering degree, civil engineers used instruments like this theodolite for surveying.
NOW: A student uses a ground-based radar interferometer, currently one of only two in the nation, to produce detailed images that help monitor slopes near roadways.

Computer Science and Computer Engineering
THEN: Computer performance is increasing exponentially. This means that computers from just a few years ago seem hopelessly outdated today.
NOW: With a focus on either software or hardware, computer science and computer engineering students are creating and programming the devices we’ll have in our pockets and houses tomorrow.

Electrical Engineering
THEN: In 1915, huge electrical switchboards were standard equipment in an electrical engineering lab.
NOW: Today, electrical engineering professors and students investigate new ways of producing electricity, such as solar and thermoelectric power.

Industrial Engineering
THEN: Industrial engineering was first offered at the U of A in 1946.
NOW: Current industrial engineering students use computer modeling to find the most efficient approaches to the systems we rely on every day.

Mechanical Engineering
THEN: These 1915 ME students are using a plane from WWI to practice their skills.
NOW: Students on the SAE Baja team design and build a vehicle that must stand up to a demanding race course.
HOMECOMING 2012

Open House • November 3 • Bell Engineering Center

The party starts three hours prior to the homecoming game kickoff.