New National Academy of Engineering Member George M. Pharr and the Future of Materials Engineering at UT
Our governor recently introduced a bold plan, the TN Promise, as a part of the state’s effort to increase the science, technology, engineering, and math (STEM) workforce in the state. It is a plan that will provide increased opportunity and motivation for high school students to attend the first two years free at the community and technical colleges within the state with the intent to increase the technologically trained workforce in Tennessee. It is also intended to encourage select students who choose that route to then consider transferring to four-year colleges within the state to further their education. While we believe that entering our college as a freshman is the preferred approach for the majority of our engineering students, we look forward to seeing an increase in interest from the students that may enter as transfer students. This trained workforce will be invaluable in helping our state compete for and increase manufacturing capabilities in our area.

In response to our unprecedented increase in undergraduate student enrollment and PhD enrollment over the last five years (34% and 65%, respectively), and in anticipation of increased emphasis on manufacturing in the US and our state, our college is also adding additional faculty in advanced manufacturing, composites, energy, power electronics, and many other areas. These additional faculty members and their staff support were made possible by increased resources that have been provided by the state, university, alumni, and friends of the college, and in collaboration with ORNL, other federally funded agencies/facilities, and our corporate partners. I encourage you to read about several of our newest faculty and the national and regional awards being received by our faculty and students in this edition of Tennessee Engineer as we continue to support the university and college’s vision of becoming a Top 25 public university.
JIAM Director and Chancellor’s Professor Pharr Named Member of the National Academy of Engineering

George Pharr, Chancellor’s Professor in the Department of Materials Science and Engineering at the University of Tennessee, has been named a member of the National Academy of Engineering (NAE). He becomes the fifth NAE member in the College of Engineering.

Pharr was elected to the academy for his “development of methods for determining mechanical properties of materials by nanoindentation.”

“George is most deserving of this membership,” said UT-President Jimmy G. Cheek. “He has made great contributions to engineering research, practice, or education and to the pioneering of new and developing fields of technology, making major advancements in traditional fields of engineering, or developing and implementing innovative approaches to engineering education. The NAE elected sixty-seven US members and eleven foreign associates this year. This brings the total US NAE membership to two thousand two hundred fifty and the number of foreign associates to two hundred and fourteen.”

“George is a leader in the materials science field nationally and internationally,” said Wayne Davis, dean of the College of Engineering. “His research and ideas have served to inspire other faculty and his students.”

The NAE recognition comes at an important time as the completion of the JIAM building–the first structure on the university’s new Cherokee Farm Campus–comes closer. Construction of the JIAM building is proceeding on schedule with phase I completion anticipated in late summer or early fall of this year,” Pharr said. “Phase II will build out the entire external space and finish half of the internal lab and office space along with an auditorium and several conference rooms. We are currently finalizing design plans for phase II, which will finish out the rest of the internal space. We hope that phase II construction will begin immediately at the completion of phase I, and if that happens, the JIAM scientists should be moving into the building in the summer or fall of 2015. The building is now complete enough that you can get a good sense of what it will be like by walking through it. It is really going to be first class.”

Pharr received his bachelor’s degree in mechanical engineering from Stanford University.

As a NAE honoree, Pharr is in good company with other engineering members including Mark Dean, John Fisher Distinguished Professor in the Department of Electrical Engineering and Computer Science; Jack Dongarra, Distinguished Professor in the Department of Electrical Engineering and Computer Science; Ramamoorthy Ramesh, UT-ORNL Governor’s Chair for Nanomaterials Engineering; and Steve Zinkle, UT-ORNL Governor’s Chair for Nuclear Materials.

“This is certainly an honor to be included in such an august group,” Pharr said. “I have worked with several of these folks over the years and have great respect for their abilities and accomplishments.”

For more information on NAE, visit www.nae.edu. For more information on JIAM, visit jiam.utk.edu/about.php.
Donors Establish Wayne T. Davis Dean’s Chair in Engineering

A $3 million gift was announced on October 4, 2013, by John D. Tickle, who established this major endowment with his wife Ann, along with Chad and Ann Holliday, Joe and Judy Cook, and Eric and Elaine Zeanah. This endowed chair will enable UT’s current dean of engineering, Wayne T. Davis, for whom it is named, to drive the College of Engineering forward in exciting new directions.

The Wayne T. Davis Endowed Chair in Engineering was named in recognition of Davis’ extraordinary service and leadership.

Since taking on the leadership of the college in March, 2009, Davis has led the college in remarkable achievements. Notably, the COE has grown by 34% at the undergraduate and 65% at the PhD levels; and the college has hired eleven out of fifteen UT–ORNL Governor’s Chairs in engineering, enhancing the strong collaborations between UT and Oak Ridge National Laboratory (ORNL). Additionally, he and Chancellor Jimmy G. Cheek presented a successful proposal to Governor Bill Haslam in 2013 that resulted in an additional $3 million annually from the state of Tennessee to the College of Engineering to promote growth and enhance engineering initiatives.

Davis has served UT and the college with distinction and integrity since 1974. In fact, integrity is a word used by each of the donors to describe him. His energy was evidenced when, as a faculty member, Davis was principal investigator or co-principal investigator on eighty-five research grants. His expertise in air quality has earned him accolades including the Lifetime Achievement Award in 2007 from the Institute of Professional Environmental Practice. He was named a UT Macebearer in 2002—the top honor accorded faculty at the university—given to one who has exhibited longstanding exemplary service to the university, its students, and society.

“This endowment provides unique funds to support priorities of the college—staff awards, assistance to special student projects, or critical laboratory renovations and equipment, for example,” Davis said. “The beauty is that it is an endowment and will be forever generating funds on an annual basis that can be used by me and future deans to further the mission of the college and its programs. I am also deeply appreciative and humbled that the dean’s chair was named in my honor and that I will be the first dean to hold the chair.”

Donors Establish Wayne T. Davis Dean’s Chair in Engineering

“During the years that Wayne Davis has served as dean of the College of Engineering, he has shown tremendous leadership. Not only is he a leader in the engineering college, he is also one of the driving forces in the race to make the University of Tennessee a Top 25 public university.”

John D. Tickle (BS/IE ’65)
Chairman, Strongwell Corporation

“Dean Davis has spent his professional career serving the University of Tennessee, and he has been an outstanding dean of engineering. My wife, Ann, and I are proud to honor Dr. Davis by joining with the Tickles, the Cooks, and the Zeanahs to establish the Wayne T. Davis Endowed Dean’s Chair in Engineering. As a UT industrial engineering alumnus, I have great faith in his leadership, integrity, and dedication to the College of Engineering and his vision for the future of engineering at UT.”

Chad Holliday (BS/IE ’70)
Chairman of the Board, Bank of America

“We are pleased to support honoring Wayne Davis with an endowed chair in engineering. Dean Davis epitomizes the highest quality of leaders with his focus on serving others and being accountable for outcomes. This award recognizes the outstanding progress the College of Engineering has experienced under Dean Davis’ guidance and sets a high mark for those who follow.”

Joseph C. Cook, Jr. (BS/IE ’65)
Principal and Co-founder, Mountain Group Capital

“Wayne’s dedication to our College of Engineering and the University of Tennessee has been seen in so many ways over his tenure. Supporting him with this honor was an easy decision as it is rare to have an opportunity to work with someone who has both the vision and ability to move things forward.”

Eric Zeanah (BS/IE ’84)
President and Owner, American Accessories International
Chair-elect, College of Engineering Board of Advisors

Accolades from the Donors
EECS Professor is ACM-IEEE Kennedy Award Honoree

Dr. Jack Dongarra of the University of Tennessee received the Association for Computing Machinery (ACM)-Institute of Electrical and Electronics Engineers (IEEE) Computer Society Kennedy Award, for his contributions in high performance computing. The honor was presented to Dongarra for his leadership in designing and promoting access to high performance computing for mathematical software used to solve complex problems common to high performance computing (HPC).

The Kennedy Award cited Dongarra for contributions in high-performance computational software, performance measurement, and parallel programming, and significant leadership and service within the HPC community.

Dongarra is a University Distinguished Professor in the Department of Electrical Engineering and Computer Science, is the founder and director of the Innovative Computing Laboratory (ICL) and holds positions at Oak Ridge National Laboratory and the University of Manchester. He is a leader in researching on implementing linear algebra algorithms for high performance computing architectures that have defined the mathematical software field, a Fellow of ACM, IEEE, AAAAS, and SIAM. Dongarra is the recipient of the first IEEE Computer Society’s Gordon B. Eppes Excellence in Scalable Computing, and the first recipient of the SIAM Special Interest Group on Supercomputing’s award for Career Achievement. He is a member of the National Academy of Engineering and the Computer Society co-sponsored the Kennedy Award, which was established in 2008, to recognize substantial contributions to programmability and productivity in computing and significant community service or mentoring contributions. It was named for the late Ken Kennedy, founder of Rice University’s computer science program which is today a world leader in high-performance computing.

In 2013, Dongarra was elected as an American Association for the Advancement of Science Fellow and served as the Fulbright Distinguished Chair in Alternative Energy from 2008 to 2009. He was also a visiting fellow at ORNL in 2013, working in the US Department of Energy’s Biocatalysis Science Center. Dongarra’s research is important to understanding how to convert biomass to biofuels, biopower, and biomaterials. Specifically, his work focuses on converting plant matter such as lignocellulose found in the cell walls of energy crops into biofuels. He also works to uncover applications of bio-based chemicals and materials for use in areas ranging from health care to packaging materials.

Dongarra plans to collaborate with UT students and faculty and research scientists to develop bioengineering research programs. He also looks forward to utilizing resources at ORNL, such as the polymer characterization laboratory and biomass processing facilities, as well as ORNL resources like the Spallation Neutron Source and the Titan supercomputer.

Dr. Steven Zinkle

Dr. Steven Zinkle, the UT-ORNL Governor’s Chair for Environmental Biotechnology in the Department of Civil and Environmental Engineering and the College of Arts and Sciences, was honored with an AAAS Fellowship for his distinguished contributions in the field of microbial ecology and bioremediation, particularly for the systems biology approach to the Deepwater Horizon oil spill. Zinkle’s research focuses on the fundamental understanding of radiation effects in metallic and ceramic materials. An authority on the effect of radiation on the fundamental understanding of radiation effects in metallic and ceramic materials. An authority on the effect of radiation on materials in fusion and advanced technologies, Dr. Zinkle came to UT from ORNL in 2013. At ORNL, he has researched the effects of ionizing radiation on materials, with a focus on improving the safety and effectiveness of the nation’s nuclear power reactors.

Two COE Governor’s Chairs Named AAAS Fellows

Two College of Engineering UT-Oak Ridge National Laboratory Governor’s Chairs, are being recognized for their teaching and research by the American Association for the Advancement of Science (AAAS) by being named to the organization’s 2013 class of fellows.

In 2013, three hundred and eighty-eight members were awarded this honor by AAAS because of their scientifically or socially distinguished efforts to advance science or its applications. The new fellows were presented with an official certificate February 15, 2014, at the AAAS annual meeting in Chicago.

Dr. Sagarsan Suresh Babu, UT-ORNL Governor’s Chair for Advanced Manufacturing in the Department of Mechanical, Aerospace, and Biomedical Engineering, was honored with an AAAS Fellowship for his distinguished contributions to computational materials science, nonequilibrium plasmas, and transformations, and application of in situ neutron and synchrotron diffraction tools, as well as other advanced characterization methods.

Dr. Terry Hazen, UT-ORNL Governor’s Chair for Environmental Biotechnology in the Department of Civil and Environmental Engineering and the College of Arts and Sciences, was honored with an AAAS Fellowship for his distinguished contributions to computational materials science, nonequilibrium plasmas, and transformations, and application of in situ neutron and synchrotron diffraction tools, as well as other advanced characterization methods.

For more information on the nomination process and to search a database of current AAAS fellows, visit www.aaas.org.
Boder. “I’m excited about working with new groups of colleagues to make a very large impact on research and education at UT,” said Boder. “Our department head, Dr. Bamin Khomami, is a very enthusiastic and persuasive individual—not to mention a respected former teacher and advisor from my undergraduate days at Washington University. So when he brought up the possibility of moving to UT, I couldn’t say no.”

Boder is now CBE’s career development associate professor, teaching biotechnology and bioprocess engineering courses, and conducting research in protein engineering. He is also the academic director for UT’s new Institute of Biomedical Engineering (iBME).

Boder takes a traditional approach in the classroom, favoring a chalkboard or whiteboard over PowerPoint presentations in order to avoid having to move too quickly and sacrifice details, depth, and rigor.

“ar about age ten, you have to give up the rest of them.”

Boder keeps up with graduate school friends via an annual fantasy football league, but doesn’t have much time these days for previous hobbies such as home brewing and aviation.

The research hobby is rewarding for Boder, though, especially within the CBE community.

“I have the pleasure of being part of an amazing group of passionate colleagues applying their expertise to topics ranging from fundamental understanding of the behavior of cells and nanoscale materials to developing new materials and processes for sustainable energy and drug delivery, among other things,” he said. “That puts our program right in the middle of some of the most exciting research and education areas currently active in the college, and those are areas that are poised for dramatic growth in industry, with real potential to improve our lives. It’s an exciting time to be part of CBE at UT.”

The Heath Endowed Faculty Fellowship in business and engineering provides me with a unique opportunity to identify and encourage interaction and collaboration between the College of Business Administration (CBA) and the College of Engineering (COE) by working with my business counterpart, Dr. Chanaka Edirisinghe. The support from this award allows me not only to integrate my work in systems productivity and reliability with others in the CBA, but also to identify opportunities for other faculty and students in both colleges. The endowment has already generated educational and research collaborations.

Dr. Eric Boder
Department of Chemical & Biomolecular Engineering

Dr. Eric Boder was on the University of Pennsylvania faculty in 2006 when he first visited UT to give a guest seminar for the Department of Chemical and Biomolecular Engineering (CBE). A look at the department’s activities and a convincing sales pitch inspired him to make the move to UT just a year later.

“I was impressed with the department and the vision for what the programs, especially the graduate education and research programs, could become,” said Boder. “Our department head, Dr. Bamin Khomami, is a very enthusiastic and persuasive individual—not to mention a respected former teacher and advisor from my undergraduate days at Washington University. So when he brought up the possibility of moving to UT, I couldn’t say no.”

Boder is now CBE’s career development associate professor, teaching biotechnology and bioprocess engineering courses, and conducting research in protein engineering. He is also the academic director for UT’s new Institute of Biomedical Engineering (IBME).

Boder takes a traditional approach in the classroom, favoring a chalkboard or whiteboard over PowerPoint presentations in order to promote a better pace. He also stays mindful of student needs.

“ar about age ten, you have to give up the rest of them.”

Boder sees success in teaching through the achievements of his passionate colleagues applying their expertise to topics ranging from fundamental understanding of the behavior of cells and nanoscale materials to developing new materials and processes for sustainable energy and drug delivery.

“I used to tell my students that if you are going to be a PhD scientist or engineer, you have to give up fifty percent of your hobbies because your research must become your number-one hobby,” said Boder. “I now tell people that once your kids get past about age ten, you have to give up the rest of them.”

The research hobby is rewarding for Boder, though, especially within the CBE community.

“I have the pleasure of being part of an amazing group of passionate colleagues applying their expertise to topics ranging from fundamental understanding of the behavior of cells and nanoscale materials to developing new materials and processes for sustainable energy and drug delivery, among other things,” he said. “That puts our program right in the middle of some of the most exciting research and education areas currently active in the college, and those are areas that are poised for dramatic growth in industry, with real potential to improve our lives. It’s an exciting time to be part of CBE at UT.”

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Dr. Rupy Sawhney
Heath Faculty Fellow
Department of Industrial and Systems Engineering
Dr. Thanos Papanicolaou has joined the Department of Civil and Environmental Engineering (CEE) as the Goodrich Chair of Excellence and teaches in the Civil and Environmental Engineering program at the University of Iowa. He also received fellowships from the Onassis Foundation for his research in geophysical techniques with College of Engineering SMRC and the Army Corps of Engineers. Prior to his tenure at the University of Iowa, Papanicolaou was a professor and associate chair of civil and environmental engineering at Washington State University. Papanicolaou is a member of several editorial boards, is an editorial board member of the ‘International Journal of Sediment Research’, serves on several editorial boards, is a member of the Iowa Academy of Sciences, serves on several editorial boards, is a member of the American Geophysical Union and the International Journal of Sediment Research. Papanicolaou earned a PhD in civil engineering from Aristotle University of Thessaloniki, Greece, and a BS in 1993 and a doctorate degree in civil and environmental engineering from the University of Minnesota and State University. He also received fellowships from the Onassis Foundation and NATO. Papanicolaou’s research focuses on sediments and soil, and how they interact with flow and precipitation. His research and teaching methods are focused on the study of transport and deposition of soil/sediment and also trace the sediment source. A team of students from the UT College of Engineering AIChE Student Chapter returned from the 2013 AIChE National Conference in San Francisco with a list of awards to show for their attendance. The team was also featured in a set of YouTube videos related to the conference’s Chem-E-Car competition. Kelli Byrne won the Praxair’s ScaleUp Award for her essay submission. Her paper compared the emissions of greenhouse gases from hydroponic production through reforming of natural gas and electrolysis of water. Amanda Jones won first place in the Undergraduate Student Poster Session on Fuels, Petrochemicals, and Energy for her poster “Comparison of Membranes Performance for Vanadium Redox Flow Batteries.” The Chem-E-Car Team competed with their car, the Tennessee Titan, in the 2013 National Chem-E-Car Competition and brought home the National SACHE Award: Inherent Safety in Design for the best application of the principles of chemical process safety to the Chem-E-Car competition. The Chem-E-Car Team Members were captains Byrne and Jones, Autumn Amaranath, Kristen Barnes, Alex David, Dennis Edrinal, Megan Favel, Sam King, Jordan Parkhurst, Kyle Saylor, Aston Thompson, and Christian Wilson. The chapter’s faculty advisor is Dr. Gabriel Goenaga and the safety advisor is Dr. Douglas Aaron. Portions of the competition are viewable on YouTube.com: • The team entry (tiny.utk.edu/SPESV) was shown before each of the Tennessee Titan’s runs during the competition. • AIChE officials interviewed team co-captain Amanda Jones about their UT entry. View the interview video at tiny.utk.edu/PcDN7. Some of the UT team members, and one of the Tennessee Titan’s competition runs, are shown in the official AIChE Chem-E-Car Competition video: tiny.utk.edu/8OukR

Dr. Thanos Papanicolaou has joined the Department of Civil and Environmental Engineering (CEE) as the Goodrich Chair of Excellence and teaches in the Civil and Environmental Engineering program at the University of Iowa. He also received fellowships from the Onassis Foundation for his research in geophysical techniques with College of Engineering SMRC and the Army Corps of Engineers. Prior to his tenure at the University of Iowa, Papanicolaou was a professor and associate chair of civil and environmental engineering at Washington State University. Papanicolaou is a member of several editorial boards, is an editorial board member of the ‘International Journal of Sediment Research’, serves on several editorial boards, is a member of the Iowa Academy of Sciences, serves on several editorial boards, is a member of the American Geophysical Union and the International Journal of Sediment Research. Papanicolaou earned a PhD in civil engineering from Aristotle University of Thessaloniki, Greece, and a BS in 1993 and a doctorate degree in civil and environmental engineering from the University of Minnesota and State University. He also received fellowships from the Onassis Foundation and NATO. Papanicolaou’s research focuses on sediments and soil, and how they interact with flow and precipitation. His research and teaching methods are focused on the study of transport and deposition of soil/sediment and also trace the sediment source.

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The Chem-E-Car Team Members were captains Byrne and Jones, Autumn Amaranath, Kristen Barnes, Alex David, Dennis Edrinal, Megan Favel, Sam King, Jordan Parkhurst, Kyle Saylor, Aston Thompson, and Christian Wilson.

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Portions of the competition are viewable on YouTube.com:

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• AIChE officials interviewed team co-captain Amanda Jones about their UT entry. View the interview video at tiny.utk.edu/PcDN7.

Some of the UT team members, and one of the Tennessee Titan’s competition runs, are shown in the official AIChE Chem-E-Car Competition video: tiny.utk.edu/8OukR

The company is an avid supporter of science, technology, engineering, and mathematics (STEM) development at the college level. COE students viewed all areas of the production process during the visit, including the daily operations of Dr. Donald E. Bently Faculty Fellow, Dr. Gabriel Goenaga, Amanda Jones, Kelli Byrne, Aston Thompson, and Dennis Edrinal.

The visit showcased the company’s facilities and pultrusion techniques.

“The Tickle family was so hospitable,” said John Scobey, a former COE Ambassador who earned his BS degree in civil engineering from UT in December 2013, and is now pursuing his MS degree at Georgia Tech. “This tour included an introduction to fiber reinforced plastic (FRP) and a tour of the pultrusion plant from start to finish. Not only did the ambassadors learn about the material that was used to build the Strongwell Corporation building, but we also learned about the emerging market of composite materials.”

Only four of the students visited Strongwell specifically to learn about the advancement of composite materials versus traditional ones, Glenn Barefoot, Strongwell’s vice president of marketing and business development communications.

Students Jonathan Weigand, Helene Rynczak, Geoff Goodmiller, and Shane Morrison received an overview briefing on composite manufacturing and applications for the materials. They also got to see the manufacturing process and product samples.

The visit provided the students with the opportunity to discuss the advantages of the material with several current students, and in the year TerMaath’s students had the chance to test those materials. In early December of 2013, her class gathered in a testing lab in the John D. Tickle Engineering Building to see how the products compare to more traditional materials.

The beam-bending test included two types of composite beams—square-tube and wide-flanged beams—and some steel and aluminum beams. Students were able to observe the localized damage in the composite beams versus the more global, plastic deformation of the metallic beams.

“We greatly appreciate the support from Strongwell that provided our students with invaluable hands on experience with composite materials,” said TerMaath. “This interactive learning in the lab exemplified the distinct behavior of composites, and the manufacture tour enabled our students to witness composite production.”

SMR Director Elected IEEE Fellow

Dr. Chuck Matcher, the director of the Scripta National Materials Research Center (SMRC) and a research professor in the Department of Materials Science and Engineering, has been elected as a fellow of the Institute of Electrical and Electronics Engineers, Inc. (IEEE). This is the highest honor that an individual can receive from an organization’s highest award, and it is often cited as recognition of Melcher’s outstanding research and professional accomplishments. For more information, visit ieee.org/membership_services/membership/fellows/index.html.
College of Engineering Research Center Spotlight:  
The Center for Transportation Research

For over forty years, the Center for Transportation Research (CTR) has been a nationally and internationally recognized research entity at the University of Tennessee (UT). The group continues to be an outstanding research venue for innovative faculty, researchers and graduate students who are finding new ways to deal with the nation’s transportation challenges.

CTR currently has over $10 million in research contracts. Transportation research, education, and technology transfer activities are vital to help rebuild the nation’s aging transportation infrastructure and to encourage solutions to tomorrow’s transportation problems.

CTR was created in 1970 to promote and facilitate interdisciplinary research, public service, and outreach in the field of transportation. The center began full-time operations in 1972. As a research center under the auspices of the College of Engineering (CEE), CTR oversees various programs associated with the education, research, training, and workforce aspects of the transportation field.

“CTR’s slogan is ‘Transportation Solutions to Move Your World,’” said CTR Director David B. Clark. “To live up to everything that implies, the center strives to realize these goals. The first is to conduct a program of research in transportation that is recognized for its excellence, comprehensiveness, innovation, productivity, and national leadership. The second is to develop and sustain the technical expertise for high quality transportation research by the faculty and students within the departments and colleges of UT. CTR’s third goal is to serve the transportation research, service, and training needs of state and local government, business, and industry in Tennessee, the Southeast region, and the nation.”

CTR benefits the region, state, and nation through its programs of research, education, technology transfer, workforce development, training, and community outreach. The center’s work touches the lives of many by improving safety on the nation’s highways; making it easier for citizens to engage in bicycle and pedestrian activities; influencing and informing transportation policy; understanding the attitudes citizens have toward transportation issues; and promoting environmentally responsible technology to help reduce pollution.

“CTR is involved in several transportation research consortia, most notably the Southeastern Transportation Center, which we lead, and the HiRail Center at the University of Illinois,” Clark added. “This support from the US Department of Transportation (US DOT) for the University Transportation Centers program is critical for CTR’s funding of faculty research and financial support of graduate students. It helps us maintain our national recognition for CTR’s expertise in a number of areas, especially in the area of comprehensive transportation safety. The Traffic Signal Academy is also gaining momentum and reaching a national audience. We justifiably have high hopes for its future because it fills a gap in continuing education and workforce development by training better traffic engineers, and improving traffic flow. And I am particularly pleased by a donation that was given to the UT Railway Association. This will help support students pursuing railroad careers by funding their travel to meetings and conferences where they can interact with industry leaders. We expect to build on our most recent successes as we win more research contracts in our program areas. CTR researchers currently have several proposals under review.”

CTR recently won a $5.5 million federal award that renews the center’s lead in the research consortium for the US DOT Federal Transit Administration Region 4, the Southeastern Transportation Center (STC). The two-year award from US DOT’s Research and Innovative Technology Administration is one of ten granted to regional university transportation centers. The money will advance US technology and expertise in the many modes and disciplines that comprise transportation research through education, research, and technology transfer.

STC members include UT as the lead institution along with the University of Kentucky, the University of South Florida, the University of Central Florida, the University of Alabama, the University of Tampa, the University of North Carolina Chapel Hill, North Carolina A&T State University, and Clemson University. CTR benefits the region, state, and nation through its programs of research, education, technology transfer, workforce development, training, and community outreach. The center’s work touches the lives of many by improving safety on the nation’s highways; making it easier for citizens to engage in bicycle and pedestrian activities; influencing and informing transportation policy; understanding the attitudes citizens have toward transportation issues; and promoting environmentally responsible technology to help reduce pollution.

The consortium’s research focuses on the Secretary of Transportation’s strategic goal of improving public health and safety by reducing transportation-related fatalities and injuries. “The consortium’s theme is comprehensive transportation safety,” said Steve Richards, consortium director. “This grant allows us to improve the safety of all transportation modes in the Southeast through research, education, and technology transfer.”

Research findings will be communicated to officials and policymakers for consideration through research symposia, workshops, and publications. The funding also will support graduate students at all participating universities to develop the next generation of safety leaders as well as address critical issues related to the shrinking transportation workforce.

“CTR is actively engaged in outreach with local and statewide communities through its work helping transportation disadvantaged groups, collaborating with public schools, and connecting local law enforcement officers to the communities they serve.”

Tennessee Vans is a social business enterprise whose mission is to meet the mobility needs of the transportation disadvantaged in a financially sustainable manner, working with community agencies to purchase vehicles to transport their clients to community events, jobs and training, and other community outreach services and activities that meet diverse client travel needs.

CTR is an active participant in the Federal Highway Administration’s Safe Routes to Schools program to develop an after-school curriculum to teach children in grades K-8 about safety aspects of walking and biking to school. The Tennessee Department of Transportation has implemented this program in conjunction with after-school programs such as YMCA and Boys and Girls Clubs.

CTR is also the administrative home for the Law Enforcement Collaborative of Tennessee (LEL). As part of the Governor’s Highway Safety Office, LEL personnel plan, develop, and implement statewide initiatives to promote highway safety, education, and enforcement. LELs promote partnerships with law enforcement, prosecutors, the judicial system, and community partners to reduce crashes, injuries, and fatalities on our roadways.

“For over forty years of research and innovation by making its expertise and resources available to communities, researchers, educators, and transportation agencies throughout our region,” said Clarke. “CTR offers expert capability in transportation planning, intermodal transportation and freight research, personnel training, continuing education, technical conferences, and community mobility outreach.”

For more, visit ctr.utk.edu.

To learn more about the Southeastern Transportation Center, visit stc.utk.edu.
Women in EECS Form Lean In Circle

Enterprising students in the Department of Electrical Engineering and Computer Science (EECS) found themselves on the forefront of the national Lean In movement not too long after forming their own UT student group, Women in EECS.

LeanIn.Org, named after the New York Times best seller Lean in by chief operating officer Sheryl Sandberg, is a private foundation focused on encouraging women to pursue their ambitions. Lean In partnered with the Anita Borg Institute (ABI), a nonprofit organization dedicated to the advancement of women in computing, and sought out Women in EECS to create the first Lean In in Circles sub-community.

Circles are small peer groups that meet regularly—in person or online—to learn and share information. For this first Circle, they specifically wanted to focus on women in technology. ABI contacted Denise Koessler, a doctoral candidate in the Department of Electrical Engineering and Computer Science. A manager at the institute knew about Koessler’s involvement in the recently formed UT group, and thought Women in EECS would be a good fit for their idea of Lean In Circles.

“I first heard of Lean in Circles in September 2013 when ABI called and asked me to lead their first circle,” said Koessler. “I have received an annual scholarship from them and have been a very active member of their Grace Hopper Conference series.”

The students formed Women in EECS in April of 2013 to recruit, mentor, and retain women in electrical engineering and computer science at UT. Their Lean In Circle was launched at ABI’s Grace Hopper Conference in Knoxville, and more mentorship programs. The group holds meetings every two weeks to discuss professional development, networking, and communication practices within each member’s respective field.

Dr. Lynne Parker is the group’s faculty advisor. Koessler is the president and chairperson. Other founding members are Katie Schuman, Nicole Pennington, Meg Drouhard, Casey Miller, Sadika Amreen, and Zahra Mahoor.

College of Engineering alumnus Dr. H.M. “Hash” Hashemian donated the seed funding to kick off Women in EECS through a $10,000 contribution from his company AMS, the leading supplier of equipment, training, and services for in-situuation response.

Dr. Lynne Parker is the group’s faculty advisor. Koessler is the president and chairperson. Other founding members are Katie Schuman, Nicole Pennington, Meg Drouhard, Casey Miller, Sadika Amreen, and Zahra Mahoor.

College of Engineering alumnus Dr. H.M. “Hash” Hashemian donated the seed funding to kick off Women in EECS through a $10,000 contribution from his company AMS, the leading supplier of equipment, training, and services for in-situuation response.

The group’s past activities have included the “Bazinga!” building party in August, 2013, in the Min Kao Electrical Engineering and Computer Science Building; a game night; attendance at the Grace Hopper, Southeastern Women in Computing, and Alliance of Women Philanthropists Annual Giving Circle conferences; the mentorship program kickoff; study breaks during final exams; and an interview workshop.

Future plans include a Hack-a-thon Workshop, a partnership to provide the “Hour of Code” program to Vine Middle School in Knoxville, and more mentorship programs. The group holds meetings every two weeks to discuss professional development, networking, and communication practices within each member’s respective field.

“We have a mentorship program underway; we are holding a course this semester which addresses the discussion points brought up in Lean In; and we are officially a part of Sheryl Sandberg’s next Lean In book,” said Koessler.

Sandberg’s Lean In for Graduates is scheduled for release in April 2014. Koessler was quoted in a January 2014 USA Today article about involvement in the book and Lean In Circles.

The group has been dedicated to Lean In; and we are officially a part of Sheryl Sandberg’s next Lean In book. We encourage women to pursue their ambitions. Lean In is a private foundation focused on encouraging women in computing, and Women in EECS is a nonprofit organization dedicated to the advancement of women in computing.

Women in EECS Form Lean In Circle

Women in Engineering and Computer Science (EECS) launched the first Lean In Circle at the Grace Hopper Conference in 2013. Picture from left are faculty advisor Dr. Lynne Parker, Katie Schuman, Denise Koessler, Sadika Amreen, and Zahra Mahoor.

In 2013, the Min Kao Electrical Engineering and Computer Science Building; a game night; attendance at the Grace Hopper, Southeastern Women in Computing, and Alliance of Women Philanthropists Annual Giving Circle conferences; the mentorship program kickoff; study breaks during final exams; and an interview workshop.

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As a student with an interest in computer science, I understand a great deal about problem solving. One of the greatest problems I have to face, as a student, is the issue of financial debt. The Anthony L. Vest Engineering Scholarship has been one of the most critical support beams that keep my tower of finances stable. Thanks to this scholarship, I have been able to not only maintain an acceptable GPA and complete the majority of my general classes, but I was also able to perform these tasks without having to take out any loans. I came to UT with the simple goal of learning more information and skills that will be useful for me throughout my life, and I can assuredly state that I am already accomplishing that goal. The Vest scholarship is proof that educational financial aid is important. I hope to continue to put this scholarship to good use and pursue my desire to learn even more here at UT.

Patrick Davis ’14
Anthony L. Vest Scholarship Recipient

The University of Tennessee College of Engineering hosted the Student and Donor Appreciation Luncheon at the Foundry on Thursday, October 31, 2013. The annual event provides an opportunity to recognize outstanding students and to thank the donors who have generously provided support for scholarships. This year, for the first time, both department and college level scholarship recipients and donors were invited to the luncheon.

Dr. Masood Parang welcomed one hundred and forty guests, including donors, students, and university and college administrators, and noted that the college was celebrating 175 years of engineering at the University of Tennessee in 2013. He then introduced a special video presentation that outlined the history of engineering at UT.

The student speaker for the event was Dave Seeman, a senior in the Department of Mechanical, Aerospace, and Biomedical Engineering. Seeman is a COE Ambassador and will graduate in May of 2014 as a National Academy of Engineering Grand Scholar with a focus in entrepreneurship.

Parang concluded the luncheon by thanking the attending donors and extending congratulations to the outstanding students at the event.

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For over forty years, the Engineering Diversity Programs Office (EDP) in the College of Engineering has provided mentoring, support, and academic resources to underrepresented students during their engineering education at UT. One of the most important components of the undergraduate experience is research. Currently, three Tennessee Louis Stokes Alliance for Minority Participation (TLSAMP) students are participating in important projects with COE faculty: Melanie Smith, Michael Massey, and Cristian Palomino. The TLSAMP program is a National Science Foundation-funded grant geared towards increasing the numbers of underrepresented students majoring in science, technology, engineering, and mathematics (STEM). Smith is collaborating with Dr. Stephanie TerMaath, an assistant professor in the Department of Civil and Environmental Engineering. On a project studying the effectiveness of Fiber Reinforced Polymer (FRP) composite patches as a repair and reinforcement technique to improve the structural performance of metallic structure, FRP composite patches are adhesively bonded to damaged or undamaged metallic parts to increase load-carrying capacity and improve damage tolerance of the part. This method has been successfully applied to aircrafts as well as naval vessels. In civil engineering, composites are now being integrated into the nation’s infrastructure, including bridges.

“Composite patches are ideal because they are easy to install, they resist corrosion, and they are easily formed into any desired shape,” Smith said. “Though composites are becoming increasingly popular in structural engineering applications, the uncertainty in the composite lamina properties can lead to uncertain reliability of patch behavior resulting in prohibitive safety factors in the design of reinforced structures.”

“I first met Melanie over the summer when we were both working at the HITS lab to encourage under-represented high school students to pursue STEM degrees,” TerMaath said. “Melanie was one of the counselors, and I was immediately impressed with her maturity and enthusiasm. Melanie has now earned a bachelor’s degree in civil engineering and is currently pursuing graduate studies.”

Smith went on to explain that the goal of the project is to create a revolution in manufacturing by making various additive manufacturing techniques the main player. This includes making large-scale, high quality products without the need for expensive machinery. Massey’s research is focused on properly cataloging and minimizing the effects of orientation in this process, especially for metals. His personal goal is to use this research and knowledge as a launching platform for his own graduate and professional research.

“On one level, the project has theoretical knowledge learned in the classroom to real world lab situations,” Massey said. “In addition, as this is a relatively unexplored area of engineering techniques, when things happen unexpectedly and to lesser degree even when they go perfectly, there are crucial critical thinking skills to be able to explain what is going on from a classroom setting, where we are told why and then we do the work. In the research setting, we use the scientific method and form a hypothesis test, and compare our hypothesis to our results. This gives me a distinct advantage in working in a research setting, proven my ability to apply my skills to various aspects of a professional engineering, and have a particular knowledge in a specialization field.”

“The ability to work in an interdisciplinary team really challenges students, as well as faculty like me,” Babu said. “These challenges lead to discoveries in making additive manufacturing real for aerospace and energy applications.”

Massey also works with two mentees at Oak Ridge National Laboratory (ORNL), Chad Dougherty and Ryan Dinh. “In some ways, the mentees are like tutors, in that they go over concepts needed for the paper work side of the research,” Massey commented. “But more importantly, they make sure you understand the physical theory of what’s going on and do their best to make sure you have all the training you need. They also recommend extra readings and trainings that would help in this experience, making sure you get the most out of this experience.”

In addition to their research projects, Smith and Massey both recently won honors at the TLSAMP undergraduate research conference held February 27-28, 2014, at Vanderbilt University. Smith won second place in the engineering category of the poster competition for her entry titled “Probabilistic Analysis of Composite Lamina Properties.” Massey won third place in the competition was evaluated based on scientific merit, originality, and her ability to explain her research and respond to questions from conference participants and poster session judges. Massey won third place in the Oral Presentation Competition in the engineering category at the event. His research project was the Center for Ultra-wide-area Transient Electromagnetic Networks (CURENT), and he was mentored by the professor and head of the Department of Electrical Engineering and Computer Science Leon Tolbert.

Orozco is working with CEE assistant professor Angelica Palomin in a NSF-sponsored project titled “Engineering a Modifiable Clay: ‘Tunable’ Polymer-Clay Composites.” The purpose of this research is to investigate the mechanical properties of materials known as “tunable” clay-polymer composites. This project is divided into several areas, including large-scale productions, plastics, and electronics. Massey’s role is to work with Dr. Ryan Dougherty at ORNL on analyzing the effects of different pH on behavior. He then works with metals on the electron laser melting platform at the Manufacturing Demonstration Facility.

“The overall goal of the project is to create a revolution in manufacturing by making various additive manufacturing techniques the main player. This includes making large-scale, high quality products without the need for expensive machinery. Massey’s research is focused on properly cataloging and minimizing the effects of orientation in this process, especially for metals. His personal goal is to use this research and knowledge as a launching platform for his own graduate and professional research.”

Cristian’s participation has been invaluable to the progression of this project,” Palomin said. “The work that he is performing will lead to a greater insight into the behavior of tunable clay-polymer composites. I am very appreciative of the opportunity to include Cristian in my NSF grant.”

Orozco hopes this undergraduate research opportunity will prepare him for the challenges and environment that he will encounter in graduate school.

All three students agree that the EDP program and staff have been instrumental to their success as engineering students.

“The EDP staff has been helping me since day one, starting with tutorials and workshops,” Palomin said. “They’ve taught me all the way to GRE prep classes.”

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He decided to attend UT after a campus visit. It provided the chemistry curriculum as well as the engineering and construction efforts along with Eastman's global manufacturing operations. This includes responsibility for the safety of employees and workers, customers—with integrity and intensity such that when I leave my current role, we can collectively say that we improved in the areas of safety, productivity, and delivery of practical solutions for our customers' needs both today and in the future. We aim to combine our unique insights and proprietary technologies to deliver new offerings that our customers value.

Cox and his wife, Shawna, met while both were working at Eastman, and they have two sons. They both play golf and enjoy spending time together at parks (including the Great Smokeys). Cox and Crawford are both executives with Eastman Chemical. Mark Cox (left) and Steve Crawford (right) are both executives with Eastman Chemical. The two men grew up in that city, and even went to the same high school. Cox and Crawford have been employed long-term with Eastman Chemical Company, which is located in Kingsport, and both currently hold professional positions with the company—Cox as Senior Vice President, Chief Manufacturing and Engineering Officer and Crawford as Senior Vice President and Chief Technology Officer. So it is no surprise that they share similar goals and visions for Eastman and for their careers.

Cox became interested in engineering as a youngster, assembling models of planes, trains, boats, and automobiles. In high school, he realized that he enjoyed chemistry and seeing how the earth's elements come together to create new and useful things. After graduation, he decided to major in engineering at the University of Tennessee.

“I knew I was interested in engineering and although I finally decided to major in chemical engineering, I found the breadth of engineering disciplines offered at UT very attractive,” Cox said. “Also, the university was close to home, and offered an attractive scholarship. I was confident I would receive a quality education that would, if I applied myself, provide the opportunity to pursue a meaningful career.”

Cox started his engineering career as a co-op (cooperative education) student at Eastman Chemical Company and was very pleased with the company culture and opportunities provided. After graduation, he began working at Eastman on a full-time basis and had multiple assignments within manufacturing, research & development, and commercial business management arenas. He eventually decided to further his education by studying for a Master of Business Administration (MBA) degree.

“During the early part of my career at Eastman, I had the opportunity to interface with several business organizations within the company and learned that I enjoyed working to create value at the intersection of science and commerce,” Cox commented. “As my commercial interest grew, the company and I realized that some business education would allow me to contribute more meaningfully to the company’s success. Northeastern MBA program offered strong general business management preparation and was structured such that I could commute to Chicago on weekends to engage in the program.”

Cox believes that his background in both business and engineering have allowed him to make unique contributions to Eastman, which is a technology-driven company that interfaces with global markets. In his current position, Cox oversees Eastman’s worldwide design and construction efforts along with Eastman’s global manufacturing operations. This includes responsibility for the safety of employees and the communities in which Eastman operates.

“We spend a lot of time ensuring that we design, build, and operate safely,” Cox said. “We also work hard to produce the highest, quality products in the most efficient manner possible.”

Crawford became interested in chemical engineering for his undergraduate degree because it provided the chemistry curriculum as well as the engineering and math influences to provide a diverse set of choices going forward. He decided to attend UT after a campus visit.

“The culture and the size of the university aligned well with my preferences,” Crawford said. “UT’s chemical engineering program also had a very challenging curriculum, which was important to me.”

Crawford also started with Eastman as a co-op student and enjoyed the practical application of his studies. He wanted to work for the company full-time after graduating, initially hired into the technology division, but he quickly moved into manufacturing. He held several management positions in the Acetyl and Cellulose Esters Division before returning to technology in 2000. During his twenty-seven years at Eastman, Crawford was a part of several initiatives, including the Tritan™ launch, the emergence of the company’s Displays product line, and the expansion of the Asia Pacific Technology organization.

Crawford’s division is responsible for providing global technical support to Eastman’s manufacturing assets, focused on operational excellence, safety, reliability, and improved productivity. The group also has responsibility for new process and product development and for providing technical support to customers. The continued growth of the company is a primary focus.

“We employ fourteen thousand people around the world and serve customers in one hundred countries, so Eastman is a global company,” Crawford said. “Our impact in East Tennessee and the state as a whole is particularly substantial. Our international headquarters are in Kingsport, and we have six thousand five hundred permanent employees plus another three thousand five hundred contract employees here. That makes our Tennessee Operations-Eastern division the world’s largest producer of acetyl products and makes us the biggest manufacturer in the state. In terms of sheer economic impact, Eastman’s Kingsport site has an estimated impact of $4.8-$5.6 billion in Tennessee.”

Both Cox and Crawford plan to continue their careers at Eastman for years to come.

“When I think of my future, I think of the future goals of the Eastman Team,” Cox said. “My desire is to serve all Eastman stakeholders—shareholders, our communities, suppliers, customers—with integrity and intensity such that when I leave my current role, we can collectively say that we improved in the areas of safety, productivity, and delivery of practical solutions for our customers.”

“Eastman men and women who have and will make our company a great one.”

At Eastman, we want to be world class innovators,” Crawford commented. “We want to create value for our customers by delivering practical solutions for their needs both today and in the future. We aim to combine our unique insights and proprietary technologies to deliver new offerings that our customers value. Process and application innovation has always been at the core of our strength and culture.”

The University of Tennessee and this college in particular are on quests to become the best we can be—better than ever before, and just as important we want the world to see our unstoppable progress. But journeys need funding and ideas need support. As the College of Engineering moves forward, we ask you to be part of our success. Alumni giving is one measure of the value our graduates place on their degree. Every gift, every year, is important. If you work for a company that matches gifts—there are fifteen thousand of them—you can multiply impact just by completing a form and turning it in with your gift. The capacity for greatness is here and now in UT Engineering. It’s more than a possibility; it’s happening in our labs and classrooms.

As you read the inspiring stories in this edition of the Tennessee Engineer, I invite you to join the journey and make a gift. An envelope is tucked conveniently in the center of this magazine, or call to find out about more ways to contribute to support engineering education at Tennessee.
UT Engineering alumni work for these matching-gift companies and many others:

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Department of Nuclear Engineering Wins First UT-COE Halloween Spirit Challenge
Faculty and staff from the Department of Nuclear Engineering (NE) won the inaugural UT-COE Halloween Spirit Challenge on October 31, 2013. The challenge, also called the “Battle on the Bridge,” took place between NE and the occupants of the new John D. Tickle Building: the Department of Industrial Systems Engineering (ISE) and the Department of Civil and Environmental Engineering (CEE).

The NE team’s theme was “Pirates,” as they were attempting to “take over” the walkway bridge to the Tickle building. They were successful and were crowned “winners” by a team of COE staff judges, who presented them with a now-coveted Halloween trophy. CEE’s costume theme featured characters from the animated film Despicable Me. ISE’s costume theme was “Industrial and Systems Engineering taming the evil forces that affect process efficiency.”

Nuclear engineering faculty and staff thanked their able competitors and plan on defending their title in 2014.

College of Engineering Names New Coordinator of Media Relations
David Goddard, formerly of the Knoxville News Sentinel, has joined the College of Engineering as coordinator of media relations, where he will focus on media placement for engineering research, faculty, students, and outreach.

Goddard reports to Dean Wayne Davis and serves on the dean’s leadership team. He is also a member of the Office of Media and Internal Relations team, which is part of the UT Office of Communications and Marketing.

An East Tennessee native, Goddard was most recently an online producer for the News Sentinel, where he spent seven years compiling, editing, designing, or working with the publication of articles for both print and online distribution. Prior to the News Sentinel, he worked as assistant news editor for the Daily Times in Maryville and as a reporter for the Cleveland Banner and the Morristown Citizen-Tribune.

Goddard graduated from UT in 1998 with a bachelor’s degree in geography. He is a three-time winner of the Society of Professional Journalists Award of Excellence as well as the 2012, 2011, and 2008 winner of the Tennessee Sports Writers Association’s statewide award for design.

“David will help advance our strategic goals for growing the college and enhancing Tennessee’s workforce,” Davis said. “His background as a reporter and producer will help us share the many ways our college has an impact across the state, nation, and world.”

Goddard will work closely with the Engineering Communications Office and Engineering Development Office on advancing public relations goals with the college’s broad constituencies.
Events & Awards

UT Engineering Team Wins Awards at First Knoxville Holiday Construction

A team from the University of Tennessee College of Engineering led by Department of Civil and Environmental Engineering professor Dr. Jennifer Retherford was awarded for its unique sculpture at the first Knoxville Holiday Construction that took place at the Knoxville Convention Center November 23-December 3, 2013.

Five location teams of architects, engineers, and construction companies competed in the Knoxville Convention, a massive can sculpture art competition presented by Messer Construction Co. that benefited Second Harvest Food Bank of East Tennessee. Nationally, Construction events take place in one hundred and seventy cities and are one of the largest national contributors of food to local food banks. Qualifying structures from the Knoxville Construction event will be entered into the national Construction competition. Each Construction structure typically includes between nine hundred and three thousand five hundred cans, with only one-quarter inch plywood or Plexiglas between the rows of cans and one-quarter inch cardboard tubing for support.

Nine judges representing media, arts organizations, nutritionists, tourism organizations, and local food production companies convened to select the winners of competition and scored each structure in four categories: A “People’s Choice Award” was decided through a public vote on the Knoxville Convention Facebook page.

The College of Engineering team won “Best Meal” and “Honorable Mention” for its sculpture “CAnnstruction.” The sculpture included two large nutcrackers with a moving mouth and motion-censored sound effect built with cans to prepare a balanced meal of chili with peanuts and fruit dessert. The team was selected for creating the most nutritious meal to help fight hunger in East Tennessee and for earning the second-most points among the jurors. The team was also awarded the coveted “People’s Choice Award” for receiving the most votes in an online poll.

The Knoxville Holiday Construction donated more than ten thousand cans of food to help Second Harvest Food Bank of East Tennessee. Second Harvest targets the working poor—those who are employed but might not receive benefits or earn sufficient wages. According to Second Harvest, one in six East Tennesseans lives in poverty and has difficulty meeting basic needs. The charity serves one hundred and fifty-eight thousand people each month. It secures and distributes more than 16 million pounds of food and grocery products annually and is a partner with Feeding America, a national network of food banks.

The UT CEE team works on the Construction project: (left to right) Trey Pippin, Sarah Howell, Steve Harvey, CEE professor Dr. Jenny Retherford, Emily Dahlstrom, Jonathan Skinnar, Javen Reynolds, Marvin Martinez, Aaron McClain (student team leader), and Kyle Scobie (Messer representative, team corporate sponsor).

COE Welcomes High School Students to Engineers Day 2013

Engineers Day has been a UT College of Engineering tradition since 1972, when engineering students were enlisted to help construct a road to Estabrook Hall. Now, each October, undergraduate engineering classes are dismissed for one day to allow university students and faculty to spend time interacting with hundreds of potential engineering students from high schools across the region.

On October 24, 2013, almost one thousand students from forty-two different high schools (and some home-schooled students) traveled to UT’s Knoxville campus to explore and learn about engineering through discussions, project demonstrations, and exhibits prepared by UT engineering student clubs and societies. Participants experienced an overview of the different engineering disciplines and saw examples of how an engineer’s work impacts daily life.

The keynote speaker for the day was COE alumnus Cavanaugh Mims (BS/NE ’86). Mims enjoyed a long career with the Department of Energy and the Tennessee Valley Authority before founding his own company, Visionary Solutions, LLC. He is also the current president of the UT Alumni Board of Directors. Engineers Day features six competitions for visiting students.

The Quiz Bowl, presented by Tau Beta Pi (the National Engineering Honor Society), pits teams of four against each other in three rounds of multiple-choice questions. A team from Farragut High School in Knox County won the 2013 Quiz Bowl.

The Egg Drop Competition is sponsored by the Department of Materials Science and Engineering (MSE), the Materials Advantage student chapter, and the student chapter of the Society of Plastic Engineers. This contest challenges students to design a device that will protect an egg from breaking when dropped. The winning team for 2013 was from East High School in Memphis.

The UT Student Chapter of the American Society of Civil Engineers (ASCE) sponsors the High School Balsa Wood Bridge Competition, which tests the structural efficiency of miniature bridges constructed by participants. Students from Hampton High School in Carter County won this time around.

The Food Battery Competition, sponsored by the UT Materials Research Society (MRS), provides a lesson in emissions-free transportation by challenging students to design a battery from edible or drinkable materials. First place went to a student at Pigeon Forge High School.

The Radiation Shielding Competition, sponsored by the American Nuclear Society (ANS), challenges students to construct a shield that blocks radiation from an intended target. This year’s winners attend the LAN:STEM Academy in Knoxville.

The Society of Hispanic Professional Engineers (SHPE) at UT coordinated the very first Solar/Fuel Cell Car Race for the 2013 Engineers Day. Teams assembled small cars, energized solar fuel cells, and competed in a twenty-two-foot race in Ferris Hall. Students from Pigeon Forge High School, in Sevier County, won with their entry.

More information on the competitions and Engineers Day can be found at www.engr.utk.edu/ed or by calling the Engineering Academic and Student Affairs office at 865-974-2454.

The next Engineers Day will be held in October 23, 2014.
The University of Tennessee College of Engineering hosted its annual Alumni BBQ on the Hill on Saturday, November 9, 2013. The event, held two hours prior to kickoff of the UT-Auburn game and catered by Dead End BBQ, included two hundred and thirty-nine faculty, staff, students, alumni, and special guests. The Homecoming celebration featured exhibits and games for both adults and children. Catered by Dead End BBQ, included two hundred and thirty-nine guests also enjoyed tours of the new Min H. Kao Electrical Engineering and Computer Science Building and the John D. Tickle Alaska Engineering Building.

Special guests included COE Dean Wayne Davis and wife Sylvia, Associate Dean for Research and Technology Bill Dunne; and ISE Department Head John Kohnke, who also served as COE hosts. Both currently and retired. Although the Tennessee Volunteers were defeated by the Auburn Tigers at the game following the event, Auburn went on to play against Florida State in the national BCS championship.)

Dr. W. David Merryman II (BS/ES ’01, MS/ES ’02), an assistant professor in the Biomedical Engineering, Pharmacology, Medicine, and Pediatrics Department at Vanderbilt University, has been selected by the American Society of Mechanical Engineers (ASME) to receive the Y.C., Fung Young Investigator Award at the 2014 seventh World Congress of Biomechanics Conference in Boston, Massachusetts, in July. Merryman received a B.S degree in 2001 and a M.S degree in 2002 from the University of Tennessee, both in engineering science. The Young award is presented for singular achievements in the study of heart valve mechanobiology in the teaching of biomechanics, and in recognition of outstanding services to the engineering profession, including the ASME Bioengineering Division. For more information, visit www.asme.org/about-asme/get-involved/honor-awards/achievement-awards/yc-fung-young-investigator-award.

Dr. Dewey Hodges (BS/AE ’69), a professor at the Guggenheim School of Aerospace Engineering at Georgia Institute of Technology, recently received one national engineering organization award and is nominated for a second. Hodges received the American Institute of Aeronautics and Astronautics (AIAA) Award for Aerelasticity in 2013. The Ashley Award for Aerelasticity recognizes outstanding contributions to the understanding and application of aerelastic phenomena. It commemorates the accomplishments of Professor Holt Ashley, who dedicated his professional life to the advancement of aerospace sciences and engineering and had a profound impact on the fields of aerelasticity, unsteady aerodynamics, aeroelasticity, and multidisciplinary optimization. Hodges was recognized for lasting contributions to analysis methodology for aerelasticity of rotorcraft and high-aspect-ratio wings, and development of educational materials for undergraduate study of aerelasticity. The award consisted of an engraved medal, a certificate of citation, a rosette pin, and an honorarium. Hodges will also be recognized by AHS International at the 2014 Alexander A. Nikolsky Honorary Lectureship. The lecture will be delivered at the 70th AHS Annual Forum and Technology Display in Montréal, Québec on Tuesday, May 20, 2014. The Nikolsky Lectureship is awarded to “an individual who has made highly distinguished career in vertical flight aircraft research and development and is skilled in communicating technical knowledge and experience.” Hodges was cited for his seminal contributions to analysis methodology for aerelasticity and structural dynamics of rotors, and his development of textbooks and courses in these areas.”

Berkus will be one of the judges for the competition, and will be joined by Horrigan Trophy winner, former NFL running back, and landscape architect Eddie George and design expert Monica Pederson. George also has Tennessee connections as he spent the majority of his career with the Tennessee Titans football team based in Nashville. Pederson is a nationally famed designer and host of Designed to Sell whose work has been featured on HGTV as well as other network and cable television shows.

The UT College of Engineering is proud to acknowledge four outstanding alumni who were recently nominated to the Business Journal’s Forty Under 40. The awards, now in their seventh year, honor individuals younger than 40 who are making great achievements and contributions to philanthropic efforts in the East Tennessee region. The program is sponsored by Lincoln Memorial University.

The engineering alumni making the list include: Jason Brooks (BS/CE 08, MS/CE 10), president and CEO, Lamar Dunn and Associates; Vecha (BS/MSE 02, PhD/MSE 05) associate director of the Facilities Management Division, Oak Ridge National Laboratory; Tony Spezia III (BS/ME ’01, MS/ME ’03, PhD 07), co-owner of Hart-Love Enterprises; and Love’s (BS/E ’03, MS/E ’07), director of the Facilities Management Division, Oak Ridge National Laboratory.

Enjoying the College of Engineering Homecoming 2013 event are left to right: Julia McClure from the Engineering Development Office and Engineering Ambassador; Emily Leturno and Tyler Rowe.

For more information, visit www.coe.gatech.edu/content/ae-professor-dewey-hodges-awarded-aa-aaltos-ashley-award-aerelasticity www.ote.org/publications/ahs-press-releases/2014-nikolsky-award
Memorials

Staff

Angela Miller, of the College of Engineering Advising Services staff, passed away suddenly on Monday, December 30, 2013. She was a graduate of Powell High School in Knoxville, and also a 2009 alumni of Alcoa Construction Systems, Inc. Following his Alcoa service, he joined the advising office in 2011 and was a recipient of the Outstanding Staff Award in 2013.

Faculty

Dr. Joseph Spruill, former head of the Department of Material Science and Engineering (MSE), passed away peacefully at his home in Knoxville on February 14, 2014, after a brief illness. Born on October 13, 1935, Spruill graduated with his BS, MS, and PhD in engineering from the University of Tennessee. He taught at UT for fifty years, and served as department head in MSE for fifteen years.

Dr. John Milton Bailey Jr., of Knoxville, passed away October 7, 2013, at his home in the Shannondale Retirement Community. Bailey was a professor emeritus in the Department of Electrical Engineering and Computer Science at UT. Bailey joined the UT faculty in 1963 and was an adjunct participant at the Oak Ridge National Laboratory (ORNL). Bailey received the Nathan W. Dougherty Award for Distinguished Service in the Engineering Profession, the most prestigious award given by the College of Engineering at the University of Tennessee. Bailey held five patents in the field of electric motor design and control.

Dr. Joseph James Perona, former head of the Department of Chemical and Biomolecular Engineering (CBE), died on December 5, 2013, at his home in Brevard, North Carolina. Born May 28, 1930, Perona was a professor of chemical engineering at UT from 1963 until his retirement in 1996, and served as the head of CBE from 1984 until 1990. While in Knoxville, Perona was a member of the Smoky Mountain Hiking Club, after retiring to Cashiers, the Mountains Hiking Club, and after moving to College Walk Retirement Community in Brevard, the Pisgah Hikers. For six summers while in his 70s, he made hiking trips in the French and Italian Alps, the last when he was 79. He was a member of the Sierra Club and the Nature Conservancy.

Dr. Clement “Clem” Wilson, (BS/ME ‘56, MS/Modif. ‘59) died on January 25, 2014. He was a UT professor emeritus in the Department of Mechanical and Aerospace Engineering. Wilson received his BS and MS from UT and his PhD in Engineering from Purdue University. He worked for IBM in engineering management for twenty-six years. While with IBM in Boulder, Colorado, he was a member of the College of Engineering Board of Advisors. After retiring from IBM, Wilson returned to UT to teach engineering. He was a member of Tau Beta Pi and Pi Tau Sigma Engineering Honoraries and Phi Sigma Kappa social Fraternity. Wilson was the author of numerous technical papers. Wilson was presented an Outstanding Engineering Alumnus award by UT.

Dr. John Mauk Kennerly, (BS/CE ‘58) died on January 7, 2014, in a helicopter accident while serving his country off the coast of England. He was a Master’s Degree candidate in the Department of Nuclear Engineering from the fall of 2012 through the fall of 2013. Stover was a native of Vancouver, Washington.

Dr. Dr. James W. Blackburn, (BS/ME ‘56, MS/ME ‘57) died on May 29, 2013. He was a resident of Seymour, Tennessee.

Dr. John Goode Pettyjohn (BS/CE ‘56) died on January 26, 2013. He was a resident of Tullahoma, Tennessee.

Dr. John William Taylor (BS/CE ‘59) died on January 16, 2013. He was a resident of Adamsville, Tennessee.

Dr. Clement Wilson

Dr. Joseph Spruill

Dr. Joseph James Perona

Dr. Joseph Milton Bailey Jr.

Dr. James W. Blackburn

Dr. John Mauk Kennerly

Dr. John Goode Pettyjohn

Dr. John William Taylor

Alumni News

1980s

John Hanula (BS/Architecture ‘83, BS/CE ‘94), senior vice president and business development director with CH2M-Hill, US client sector, was named to the Board of Directors of the WaterReuse Research Foundation. As a board member, Hanula will represent the water industry and work to advance the science of water reuse, recycling, reclamation, and desalination. He was also appointed in November to the Sonny Astani Department of Civil and Environmental Engineering Advisory Board at the University of Southern California (USC) Viterbi School of Engineering. Hanula is based in CH2M-Hill’s Los Angeles, California, office.

1990s

Dr. Don Malloy (PhD/ME ’99) was named in the February 2014 edition of PE, the National Society of Professional Engineers (NSPE) magazine, as a contender for the Federal Engineer of the Year Award for 2014. He also received the 2013 Air Force Material Command Senior Civilian Engineer Award, cited for demonstrating “innovative, initiative, and unrivaled technical expertise, creating and executing a risk reduction plan to support a low-cost, accelerated aerial target development effort.” Malloy is the Flight systems analysis lead with the Arnold Engineering Development Complex (AEDC) Analysis and Evaluation Branch at Arnold Air Force Base.

Check out the new items for sale in the CoE Store.

We also have clearance items marked down up to 40% off selected items!!
Calendar

Spring 2014
Classes Begin
Jan 8
2nd Session Begins
Feb 27
Spring Break
Mar 17-21
Classes End
Apr 25
Study Day
Apr 28
Exams
Apr 29-30, May 1-2, 5-6
Graduate Hooding
May 8
Commencement
May 7-10
Official Graduation Date
May 10

Fall 2014
Classes Begin
Aug 20
Labor day
Sept 1
Fall Break
Oct 16-17
Classes End
Dec 2
Study Day
Dec 3
Exams
Dec 4-5, 8-11
Graduate Hooding
Dec 12
Commencement
Dec 13
Official Graduation Date
Dec 13

Contact Information
Senior Administration
Dr. Wayne Davis,
Dean of Engineering
Dr. Bill Dunne,
Associate Dean for Research & Technology
Dr. Veerle Keppens,
Associate Dean for Faculty Affairs
Dr. Masood Parang,
Associate Dean for Academic & Student Affairs
Departments
Chemical & Biomolecular 974-2421
Civil & Environmental 974-2503
Electrical & Computer Science 974-3461
Industrial & Information 974-3333
Materials Science 974-5336
Mechanical, Aerospace & Biomedical 974-2093
Nuclear 974-2525
Communications 974-0533
Dean’s Office 974-5321
Development 974-2779
Engineering Advising Services 974-4008
Engineering Diversity Programs 974-1931
Engineering Fundamentals 974-9880
Engineering Professional Practice 974-5323
Engineering Research 974-8360
Engineering Student Affairs 974-2454
Finance & Admin. Affairs 974-5279
Research Centers
Materials Processing 974-0816
Maintenance & Reliability 974-9625
Scintillation Materials 974-0267
Transportation Research 974-5255
Intelligent Systems and Machine Learning
CURENT 974-5803
Innovative Computing Laboratory 974-8295

Big Orange Friday
Show us your orange!
Do you want to show your love for the University of Tennessee? Participate in Big Orange Friday! Every Friday, UT alums are encouraged to wear orange. The color unites alumni and fans alike, and provides an opportunity to connect with one another and tell our Volunteer stories to the world.

Wear your colors. Tell your story.

#BigOrangeFriday

Future Vols
Do you know a high school or college transfer student the University of Tennessee should contact with admission information? If so, we want to introduce them to our great university.

Refer a Vol at futurevols.utk.edu

The University of Tennessee is an EEO/AA/Title VI/Title IX/Section 504/ADA/ADEA institution in the provision of its education and employment programs and services. All qualified applicants will receive equal consideration for employment without regard to race, color, national origin, religion, sex, pregnancy, marital status, sexual orientation, gender identity, age, physical or mental disability, or covered veteran status.