

TENNESSEE

SPRING 2013

ENGINEER

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COLLEGE OF ENGINEERING
CELEBRATING
175
YEARS 1838-2013
THE UNIVERSITY OF TENNESSEE



175 Years of Engineering at the University of Tennessee
Distinguished History. Dynamic Present. Bright Future

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Dean’s Message

Welcome to this special edition of *Tennessee Engineer*. We are excited about recognizing 175 years of engineering at the University of Tennessee, and we have many events and activities going on during this year of celebration.

Inside this issue, you will find a special inserted poster that traces the history of engineering at the university. It has been a fascinating journey!

The university (then East Tennessee College) offered its first engineering course, surveying, in 1838. Today, we still offer surveying, but utilize digital equipment and GPS positioning systems. We also offer over three hundred fifty undergraduate and five hundred graduate courses in twelve undergraduate disciplines, sixteen master’s programs, and fourteen PhD programs on our Knoxville and Tullahoma campuses. We are steeped in tradition, with over twenty-four thousand living alumni located in all fifty states and over sixty-five countries. The celebration of our 175th anniversary of providing engineering education provides us a time to celebrate our past and current successes and present our vision for the future.

As of 2013, I have been at the university for forty-two years, as a graduate student, faculty member, associate dean (of the graduate school and the college), and now as dean. My role as dean has been the most challenging and yet exciting and fulfilling position that I have held in my career and I cannot imagine a place that I would rather be.

The college has made major progress in expanding its capacity to provide an engineering education to its undergraduate and graduate student body, with increases in enrollment of 37% (BS) and 62% (PhD) in the last five years.

We have a new engineering building (the Min H. Kao Electrical Engineering and Computer Science Building) that just opened this past year; the new John D. Tickle Engineering Building will open during this year of celebration (currently scheduled for this summer) with the building dedication ceremony to take place on Friday, October 4; the Joint Institute for Advanced Materials facility is now under construction on the Cherokee Farms campus; and we hope to announce the details of an additional new engineering complex that will move into the design phase this year. These outstanding facilities will provide us the opportunity to provide a high quality education to our ever-growing population of engineering students.

This celebration will allow us to showcase the phenomenal progress that our college and university have made since its inception—and the best is yet to come! We are very proud to be a major contributor to the economic base and technological innovation of our state, nation, and the world through our faculty, staff, students, and graduates.

We hope you will join us in celebrating all of the good things that have happened and are happening with engineering at the University of Tennessee in 2013.

Wayne T. Davis



175 Years of Engineering at the University of Tennessee

Distinguished History. Dynamic Present. Bright Future

Get ready to celebrate! In 2013, the College of Engineering is marking several momentous milestones, including:

- The commemoration of 175 years of engineering at the University of Tennessee
- The dedication of the John D. Tickle Engineering Building
- The recognition of the 40th anniversary of Engineering Diversity Programs in the College of Engineering

The origins of the college began 175 years ago in 1838, when the first engineering course, surveying, was offered at what was then East Tennessee College.

The college will be saluting significant achievements from the past, highlighting current progress, and planning for an even more successful future during this year-long event.

The highlight of the anniversary celebration will be the dedication of the John D. Tickle Engineering Building at 851 Neyland Drive. The facility, currently under construction, is projected to be completed in the late spring of this year with the Department of Civil and Environmental Engineering relocating from Perkins Hall and the Department of Industrial and Systems Engineering moving from East Stadium Hall to the Tickle Building during the summer months.

Mr. John D. Tickle (BS/IE '65) and his wife, Ann Tickle, provided a generous donation to the construction of the building. Tickle is the chairman of Strongwell Corporation, headquartered in Bristol, Virginia. Strongwell is a world-wide operation, with the Bristol division serving as its headquarters.

Together, John and Ann Tickle were recognized with a 2012 University of Tennessee Distinguished Alumnus Award from the UT Alumni Board of Directors, the highest distinction given by the Knoxville campus.

John Tickle also received the 2013 ACMA Lifetime Achievement Award from the American Composites Manufacturers Association (ACMA), the composites industry's largest trade group in the world. He has been the recipient of a host of local, regional, and

national business and philanthropic awards and has served on the UT Athletic Board and with the COE's Board of Advisors. He was a member of the Campaign for Tennessee Engineering Executive Committee for the college.

Ann Tickle graduated with a bachelor's degree from the UT College of Education and is extensively involved in philanthropic work, including the College of Veterinary Medicine at UT, where the small animal laboratory is named for the couple.

The college's main 175th anniversary events will take place on Friday, October 4. The dedication ceremony will take place at the John D. Tickle Building beginning at 10:00 a.m. All UT faculty, staff, and students are invited, along with the general public. Guest parking is available at the Second Creek lot on Cumberland Avenue. A reception and tours of the facility and other engineering departments will follow the ceremony.

The 40th anniversary of the college's Engineering Diversity Programs will also be recognized with a luncheon and program (reservations required) for invited guests at noon that same day.

On the evening of October 4, the college will host an invitation-only Gala Celebration recognizing 175 years of engineering at the University of Tennessee. This event will feature a reception at 6:00 p.m., banquet at 7:00 p.m. and a special program after dinner that includes a keynote speaker and video presentation. Reservations will also be required for this event.

Invitations for all events will be mailed out by July 1, 2013.

For more information on the 175th anniversary events, visit: <http://www.engr.utk.edu/175>.

Send us your story! We want to feature your remembrances on this website as part of our celebration. Send your favorite anecdotes—about faculty who influenced you, how you met your spouse, adventures in the labs, memories of friends, etc.—to coe@utk.edu. Join the festivities and help us tell the Tennessee Engineering story.

Faculty Updates



Dr. Thomas Kerlin

NE Emeritus Professor Publishes Two New Books

Dr. Thomas W. Kerlin, professor emeritus and former head of the Department of Nuclear Engineering has recently had two new books published by the International Society of Automation (ISA).

Future Energy: Opportunities and Challenges presents the scientific principles underlying the capabilities and limitations of each potential energy production and energy use technology so that energy choices can be based on facts, not conjecture or misperceptions.

ISA has also published a book, written by Kerlin along with colleague Dr. Mitchell Johnson, *Practical Thermocouple Thermometry* (Second Edition). This comprehensive publication will help readers from any background achieve good performance with thermocouples. Kerlin and Johnson have updated the second edition to include the latest in thermocouple technology, building on their sixty-plus years of collective experience in theory, research, teaching, manufacturing, and real-world applications.

ISA (www.isa.org), founded in 1945, is a leading global nonprofit organization that is setting the standard for automation by helping over thirty-thousand worldwide members and other professionals solve difficult technical problems, while enhancing their leadership and personal career capabilities.

More details about the books and ordering information can be found at www.isa.org.

Innovative, Early-career Engineering Faculty Participate in NAE’s Frontiers of Engineering Education Symposium

Two COE faculty members were part of a group of seventy-two of the nation’s most innovative, young engineering educators who were selected to take part in the National Academy of Engineering’s fourth Frontiers of Engineering Education (FOEE) symposium. The attendees were nominated by fellow engineers or deans and chosen from a highly competitive pool of applicants. The symposium was held Oct. 14-17 in Irvine, California.

Dr. Claudia Rawn, a UT-Oak Ridge National Laboratory Joint Faculty member and an assistant professor in the Department of Materials Science and Engineering, and Dr. Jeffrey Reinbolt, an assistant professor in the Department of Mechanical, Aerospace, and Biomedical Engineering, both were selected to participate in the event.

Rawn has been at the forefront of the college’s latest engineering education initiative, the Research and Instructional Strategies for Engineering Retention (RISER), a new program funded through a National Science Foundation (NSF) Science, Technology, Engineering, and Math (STEM) Talent Expansion Program (STEP). The goal of STEP is to recruit and retain students in STEM fields. Rawn is also the new director of the college’s Center for Materials Processing (CMP), a State of Tennessee Center of Excellence that was established in 1985. CMP’s objective is to develop significant



Dr. Claudia Rawn



Dr. Jeffrey Reinbolt

research and academic programs that address the specific needs to American industry in the field of materials.

Reinbolt has been actively engaged in effective, innovative student learning since he was hired in 2009 after a three-year appointment at Stanford University. He is helping to facilitate institutional change with an award from The National Institutes of Health for the college’s first R25 research education grant titled FUTURE (Furthering University of Tennessee Undergraduate Research Education) for Team-Based Design in Biomedical Engineering. This project fills a gap between the education of biomedical engineers and their roles in the engineering workforce.



Dr. Mingjun Zhang

MABE Professor’s Research Project Published in National Journal

PLOS Computational Biology, an open-access, peer-reviewed journal published monthly by PLOS as an official journal of the International Society for Computation Biology (ISCB), is publishing “Experimental Studies and Dynamics Modeling Analysis of the Swimming and Diving of Whirligig Beetles (Coleptera:

Gyrinidae),” an article by Dr. Mingjun Zhang, an associate professor in the Department of Mechanical, Aerospace and Biomedical Engineering (MABE). The article focuses on Zhang’s research, funded by a grant from the Office of Naval Research, with a bio-inspired swimming robot project. For more information, visit: <http://www.ploscompbiol.org>.

EECS Professor Receives Professional Achievement Award

Dr. Jack Dongarra, a Distinguished Professor in the Department of Electrical Engineering and Computer Science and the director of the Innovative Computer Laboratory, will be the recipient of the 2013 Illinois Institute of Technology’s (IIT) Professional Achievement Award in recognition of the contribution and achievements of IIT’s most remarkable graduates and leaders. Dongarra received his MS degree from IIT. The awards ceremony will take place on the IIT campus in April.



Dr. Jack Dongarra

COE Faculty Teams Receive NEUP Awards

A proposal submitted by a research group led by Dr. Kurt Sickafus, Alvin and Sally Beaman Professor and head of the Department of Materials Science and Engineering, to the 2012 Nuclear Energy University Programs (NEUP) Integrated Research Programs (IRP) Awards was selected for a \$3.5 million award for a nuclear innovation project. The US Department of Energy (DOE), which provided a total of \$13 million in funding for the three university-led research teams, recently announced the award.

Researchers on the UT-led project will develop a fuel concept based on an advanced ceramic coating for Zr-alloy cladding. Collaborating institutions on the UT team include Pennsylvania State University; University of Colorado, Boulder; University of Michigan; Westinghouse Electric Company; Los Alamos National Laboratory; University of Manchester; University of Oxford; University of Sheffield; and University of Huddersfield.



Dr. Kurt Sickafus

The university was also selected to collaborate with Georgia Tech and eleven other institutions on a \$5.9 million NEUP IRP award project to develop a novel concept of a high-power light water reactor (LWR) with inherent safety features that will advance its safety level beyond that of advanced passive systems. The UT group is led by Dr. Wesley Hines, Charles P. Postelle Distinguished Professor in Nuclear Engineering and the head of the UT Department of Nuclear Engineering, and Dr. Belle Upadhyaya, a professor in the nuclear engineering department.



Dr. J. Wesley Hines

The NEUP programs support multifaceted projects to develop breakthroughs for the US nuclear energy industry. Universities lead the three-year projects, working in



Dr. Belle Upadhyaya

collaboration with the nuclear industry, national laboratories, and international partners.

For more information on the specific awards, visit www.neup.gov.



Dr. Leon Tolbert Named EECS Department Head



Dr. Leon M. Tolbert

Dr. Leon M. Tolbert, the Min H. Kao Professor in the University of Tennessee (UT) Department of Electrical Engineering and Computer Science (EECS), is now head of the EECS department effective January 1, 2013.

Tolbert, an internationally respected researcher in the areas of power systems and power electronics, hybrid electric vehicles, renewable energy, and silicon carbide power electronics, will take leadership during a time of tremendous

growth for the EECS department. The department completed a move to the new Min H. Kao Electrical Engineering and Computer Science Building in January of last year, and celebrated the dedication of the new facility in March 2012. The expanded classroom and laboratory space offers tremendous potential for both teaching and research.

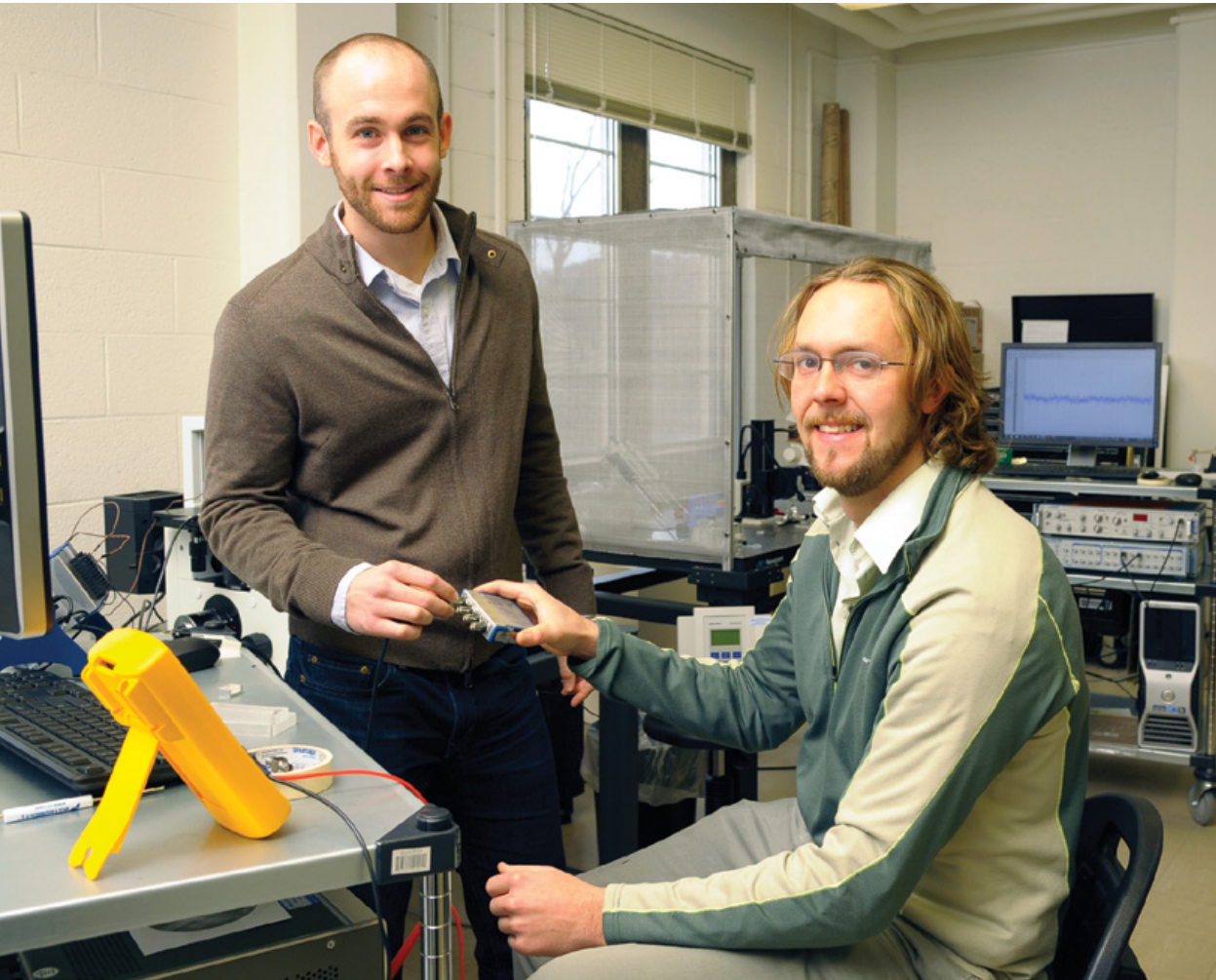
The department also received a five-year, \$18 million grant from the National Science Foundation to establish an NSF Engineering Research Center (ERC) focused on research, education and technology for sustainable energy systems with an emphasis on power transmission systems. The Center for Ultra-wide-area Resilient Electric Energy Transmission Networks (CURENT) involves a consortium of academia, industry, and national laboratories. Tolbert is a participating researcher in CURENT.

Tolbert received the Chancellor’s Multidisciplinary Research Award in 2012. He was also the awarded the college’s Moses A. and Mayme Brooks Distinguished Professor Award in 2010. He was named a COE Research Fellow in 2012, 2007, and 2003. He was awarded the Min H. Kao Faculty Fellowship in 2006 and was named the Min H. Kao Professor in 2008.

Tolbert received his BS, MS and PhD degrees, all in electrical engineering, from the Georgia Institute of Technology. He is a registered Professional Engineer in the state of Tennessee and is a Fellow in the Institute of Electrical and Electronics Engineers (IEEE). He is also a member of the American Society of Engineering Education (ASEE). He is a part-time senior research engineer at Oak Ridge National Laboratory and conducts joint research at the National Transportation Research Center (NTRC).

Tolbert was recently named as a Fellow of the Institute of Electrical and Electronic Engineers (IEEE), the organization’s highest honor. He was also elected as member-at-large to the IEEE Power Electronics Society Advisory Committee for 2010-2012, and he served as the chair of the PELS Membership Committee from 2011-2012. He was an associate editor of the IEEE Transactions on Power Electronics from 2007 to 2012 and has three prize paper awards from the IEEE.

Tolbert replaces the current department head, Dr. Kevin Tomsovic, who is now devoting himself full time to his role as director of CURENT.



Dr. Andy Sarles (left) works on a research project with Graham Taylor, a biomedical engineering PhD student.

Dr. Andrew Sarles, Department of Mechanical, Aerospace & Biomedical Engineering

Dr. Andy Sarles pursued a migratory route to his position as assistant professor in the College of Engineering’s Department of Mechanical, Aerospace, and Biomedical Engineering (MABE).

“My path to becoming a faculty member at UT is a bit circular, or diagonal if you look at a map,” said Sarles.

He grew up in Princeton, West Virginia, earned his BS in mechanical engineering at the University of Tennessee, and then got his MS and PhD from Virginia Polytechnic Institute and State University (Virginia Tech), not far from his hometown. He stayed, for a year, with the Virginia Tech Department of Mechanical Engineering, working as a post-doctoral research scientist with Dr. Don Leo. Then, it was time to return to Tennessee.

“I was fortunate to be able to return to Knoxville and join the MABE faculty in August, 2011,” he said. “It’s great being back, and I’m lucky to get to work with many of the faculty whom I first knew when I was a student.”

Sarles taught sophomore-level Mechanics of Materials (ME321) in the spring of 2012. He is also interested in developing new courses for MABE in bio-inspired design on the undergraduate level; and in smart materials and structures and analysis of biomembranes on the graduate level.

“I get excited about teaching and the opportunity to interact with students and contribute to their learning,” he said. “I believe a successful teacher must be an effective communicator, command

accuracy in the subject matter, and be able to relate to the topic.”

His classroom subjects echo his research focus on biologically inspired materials and systems.

“A central theme in our work is the assembly, use, and characterization of material platforms that feature synthetic lipid bilayers,” said Sarles. “These five-nanometer-thick membrane structures mimic the structure and function of lipid membranes found in living plant and animal cells.”

The synthetic versions can be used to host a wide variety of naturally occurring biological molecules that perform vital tasks for the cell such as signaling, transport, and energy-conversion.

“We are currently studying how lipid bilayers can be used as mechanical sensors—detecting air flow, vibration, and even sound,” said Sarles. “We use membrane-based platforms to detect toxins and understand the assembly of

peptides related to disease development.”

Sarles’ research contributes to a multi-university collaboration—with his Virginia Tech mentor Dr. Leo and others—to study these materials via a \$3.75 million grant from the Air Force Office of Scientific Research.

Sarles hopes to build on this mix of research and teaching as he progresses at UT.

“My big picture goal for the next three to five years is to continue to develop a respected research group known for performing high quality work and producing capable graduates who are creative problem solvers, experienced scientists, and effective writers and speakers,” he said.

Sarles is inspired to be a part of UT’s mechanical, aerospace, and biomedical engineering program as it moves forward.

“I continue to be impressed by the quality of the faculty in our department,” he said. “I am confident that this strength will play an important role not only in the education of our students, but also in fostering collaborations with other colleagues in the COE, researchers outside of UT, and industry partners.”

In addition to campus activities, Sarles and his wife, Kelsey, enjoy exploring the Knoxville area and sites.

“We like any activity that gets us outside—road biking, hiking, tennis, working in our yard,” he said. “We’ve been seeing shows at the Tennessee and Bijou theaters; we enjoy traveling; and we like to cook. I also like to play guitar, though saying that I ‘play’ may be a tad generous.”

Engineering Students Place in NDConnect National Competition

A duo of enterprising undergraduate engineering students collaborated to land the bronze-medal position in the 2012 Notre Dame Competition in Nanoscience and Nanoengineering, and Campus Tour (NDConnect), awarded October 5, 2012, at Notre Dame University in South Bend, Indiana.

Neil Brown and Hannah Haines, research students in the Department of Chemical and Biomolecular Engineering, shared the \$1,000 third-place win for their poster titled “Systematic Assembly of Photosystem I (PSI) on Chemically Patterned Substrates.”

The presentation grew from their research in the Nano-biomaterials Laboratory, where they work under Bamin Khomami, the Granger and Beaman Distinguished University Professor and head of the Department of Chemical and Biomolecular Engineering (CBE); and Dibyendu Mukherjee, an associate professor in the Department of Mechanical, Aerospace, and Biomedical Engineering (MABE).

The research is associated with the Sustainable Energy Education and Research Center (SEERC). It is carried out in technical collaboration with Dr. Ilia Ivanov and Dr. Jamie M. Messman from the Center for Nanophase Materials Sciences (CNMS) at Oak Ridge National laboratory (ORNL).

“We both work on the same project, but from different angles,” said Brown. “Hannah works with electrical characterization and I work more closely with surface attachment of PSI. For the contest, we worked to arrange our most recent works in an easily presentable poster format.”

The presentation highlighted their research into the fabrication of solid-state, bio-hybrid photovoltaic devices that incorporate PSI, a protein complex that is involved in photosynthesis in plants. Their work could lead to hybrid solar-energy systems that use biological materials, offering a cleaner, greener energy source than that of conventional solar cells.

“PSI is almost 100% efficient at moving electrons on a nanoscale level, and can be used like a battery in a circuit if placed such that directional electron flow is able to occur,” said Haines.

Brown is a junior from Kingsport, Tennessee, and Haines is a senior from Limestone, Tennessee. In addition to working in the Nano-biomaterials Laboratory, both actively pursue on-the-job experience through internships and co-op assignments. For the competition, they maintained a tag-team research schedule while traveling back and forth to co-op assignments with ExxonMobil in Texas.

“During the summer months, while Hannah was away for an internship, I worked both on completing further systematic attachment research and organizing what information would be pertinent to the contest,” said Brown.

When Brown’s fall co-op term came up, Haines returned to campus to conduct electrical characterization research and finish the poster.

“I picked up where the group left off, focusing more on surface composition analysis of the self-assembled monolayers (SAMS),” said Haines.

The students credit professors Khomami and Mukherjee for their encouragement and guidance.

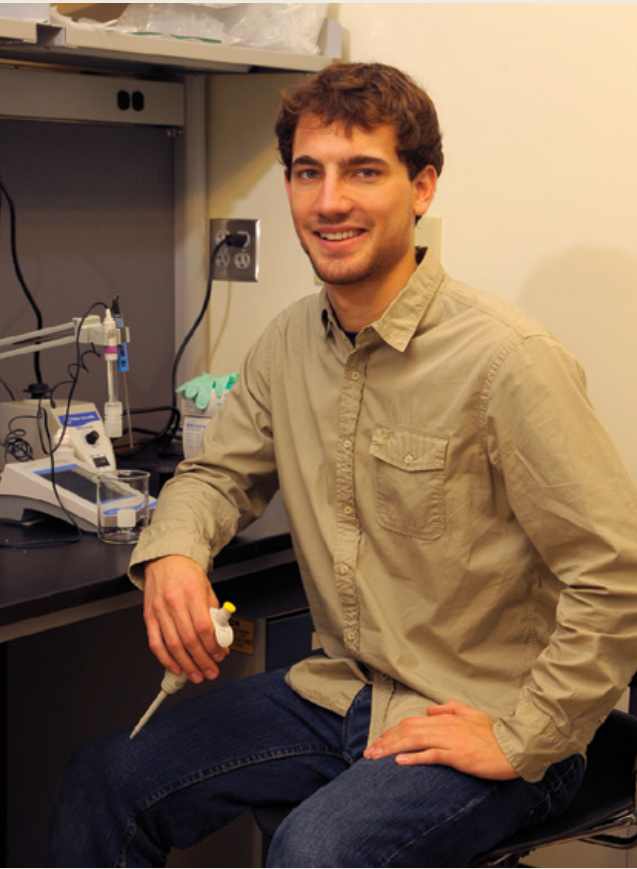
“Both were principle directors for guiding the experimental series,” said Haines. “They helped us to trouble-shoot and develop the correct methodic approach for studying our system. It was their influence that allowed us access to facilities at ORNL and state-of-the-art equipment for our lab at UT.”

“Additionally, they reviewed both our original application for the contest as well as the PowerPoint and the final poster that we took to the competition,” said Brown.

Both students also felt that the competition experience earned them more than just the prize money.

“The competition was my first opportunity to present research that I have worked on,” said Brown. “It helped me expand my research skills, both through requiring me to assemble information from our lab in a presentable form and to know it well enough to orate it.”

“It was fascinating to see the other projects and diverse interests of students in the field of nanotechnology,” said Haines. “It was a good opportunity to network with faculty, representatives from industry, and other students.”

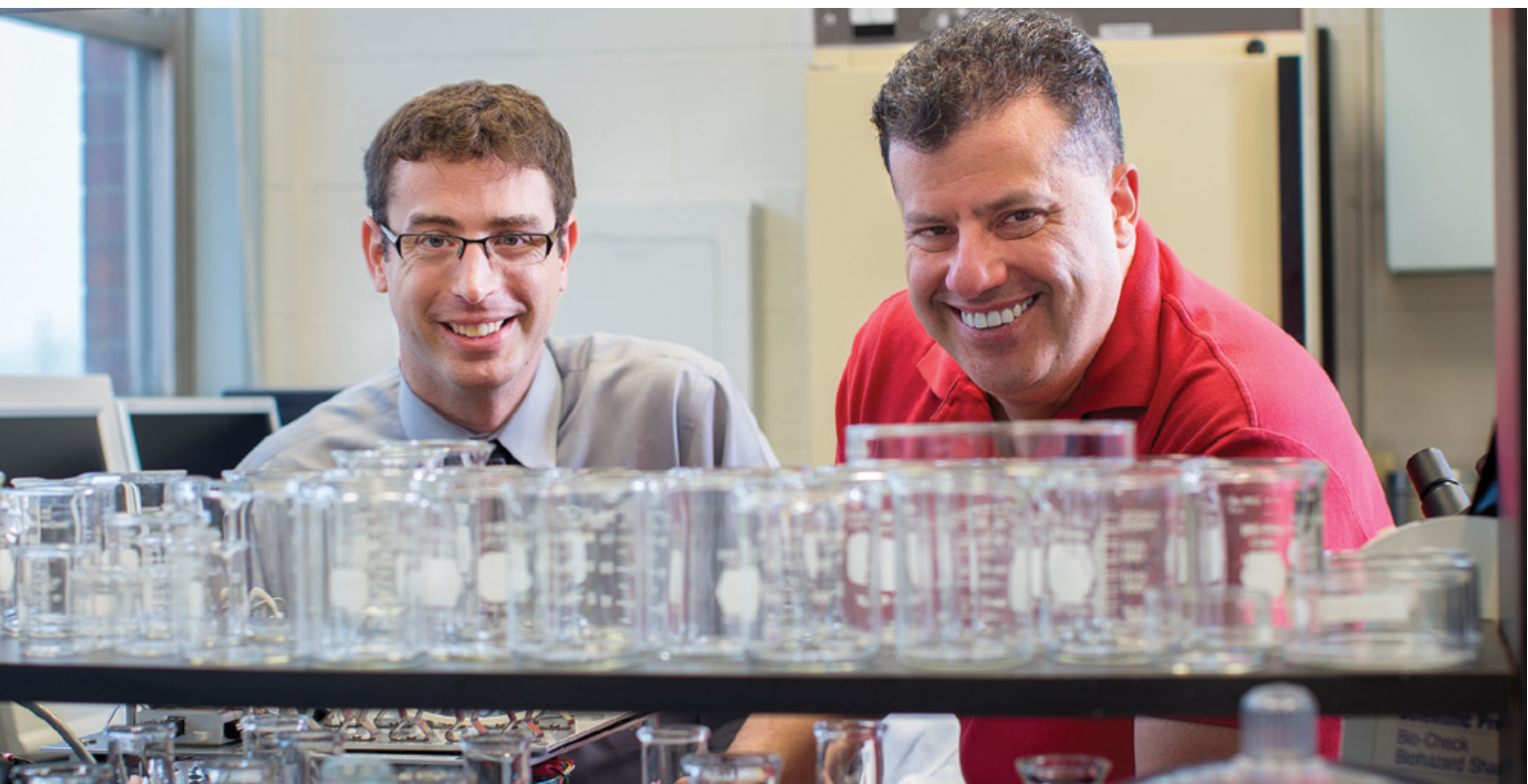


Neil Brown



Hannah Haines

The University of Tennessee Establishes New Biomedical Engineering Institute



Christopher Stephens, PhD (left), and Mohamed Mahfouz, PhD (right), help lead collaborative research through the Institute of Biomedical Engineering.

The University of Tennessee has launched a new institute to research solutions to medical problems such as devices for improved delivery of medications and monitoring of patients; better imaging technology; regenerative models to help the body heal itself; and optimized efficiency in the healthcare setting. Finding answers to these and many other healthcare problems is possible through a unique collaboration introduced by the new Institute of Biomedical Engineering (iBME). This new institute connects not only engineering and medicine but also three diverse university campuses in a collaboration that is unique in the country; innovative for UT faculty, physicians, and students; and beneficial to people everywhere.

In February, the UT College of Engineering (COE) and the Office of Research & Engagement in collaboration with the UT Graduate School of Medicine (GSM) and UT College of Veterinary Medicine (CVM) established iBME, a new multidisciplinary initiative. While the institute is operationally based in the engineering college, it is intended to be an intellectual bridge to a number of disciplines including engineering, medicine, veterinary medicine, arts and sciences, nursing, agriculture, and others.

iBME provides a unique opportunity for UT to respond to the growing demand for education and research opportunities in the rapidly expanding field of biomedical engineering. Researchers from the three founding institutions work collaboratively with scientists, physicians, faculty, and students from many UT disciplines to research today's medical problems, resulting in better healthcare for the state and beyond.

"We are coming together to capitalize on resources and collaborate on medical problems that can only be solved through such teamwork," says Mohamed Mahfouz, PhD, a professor in the Department of Mechanical, Aerospace, and Biomedical Engineering (MABE). "If we confine the field of biomedical engineering into just one department, we lose the perspective of what can be accomplished."

The goals of iBME include generating cross-disciplinary teams to develop healthcare innovations and discover new research funding;

to offer a multidisciplinary curriculum and real-world medical experiences to engineering students; to provide a regional resource to improve the general public's understanding of biomedical engineering; and to establish outreach to area educators and students to develop interest in and knowledge of the field.

Mitchell Goldman, MD, a professor and chair of the Department of Surgery and assistant dean of Research of the Graduate School of Medicine, is enthusiastic about the institute.

"iBME offers a unique opportunity to combine the intelligence and scientific resources of engineering, veterinary medicine, and human medicine to solve problems in healthcare delivery, monitoring of outcomes, disease pathophysiology, therapeutics, wellness, and more," he says.

Research focus areas include molecular, cellular, and tissue engineering; healthcare engineering; and imaging, biomechanics, and devices. iBME will also feature masters and PhD programs in biomedical engineering that include specialization tracks in the three research focus areas.

"We know the healthcare environment in America is changing, and being able to manage those changes while continuing to provide the best patient care demands innovation," says James Neutens, PhD, FASHA, dean of the UT Graduate School of Medicine. "Collaboration such as that found in iBME brings together inquiry from diverse perspectives and results in answers to healthcare problems."

Mahfouz, an internationally established researcher in the field of biomedical engineering, is the director of iBME. Dr. Eric T. Boder, an associate professor in the Department of Chemical Engineering, is the institute's academic director, and serving as research and outreach director is Dr. Christopher P. Stephens, medical-engineering liaison and an assistant professor in the COE, GSM, the Center for Materials Processing, and the biomedical engineering program in MABE.

For more information, visit <http://ibme.utk.edu>.



"The Ferguson Faculty Fellowship in Chemical Engineering encourages me to continue and expand my research in the understanding of structure/property relations of materials used in energy conversion and storage devices. The support of this fellowship also helps to enrich the material used in the classroom."

Dr. Stephen Paddison

Ferguson Faculty Fellow in Chemical Engineering
Department of Chemical and Biomolecular Engineering

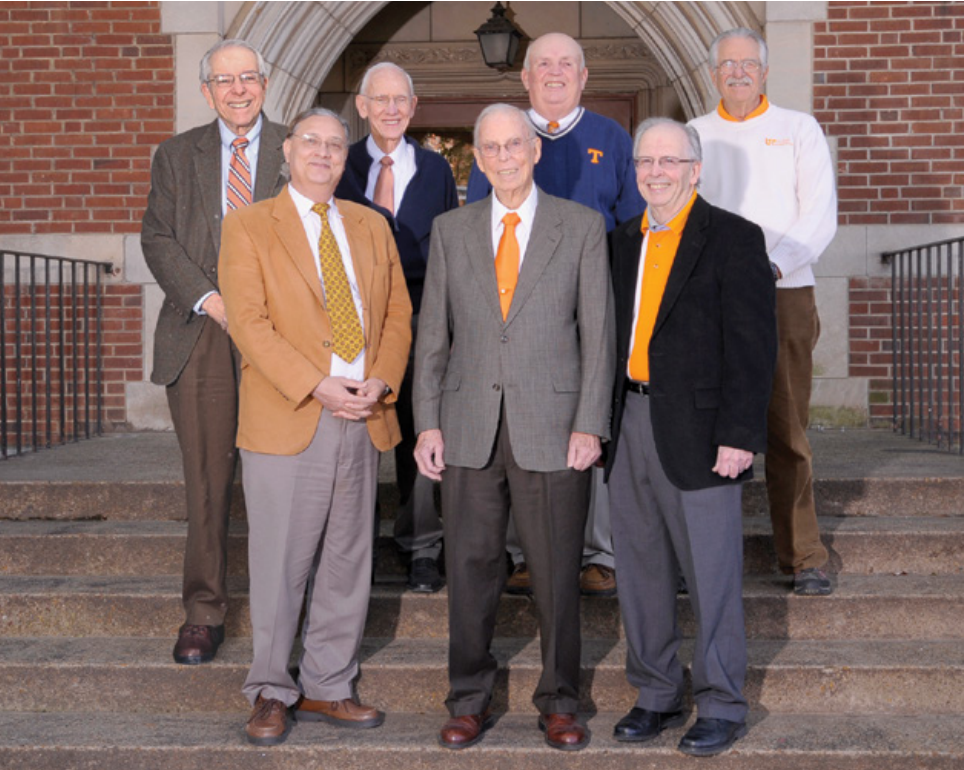
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COE Professors Represent Living History of Engineering at UT



UT College of Engineering professors (left to right): Dr. John W. Prados, Dr. Mongi Abidi, Dr. Edwin G. Burdette, Dr. Joseph Spruell, Dr. H. L. (Lee) Dodds, Dr. C. H. (Hal) Aikens, and Dr. Mancil Milligan

Seven doctorate degrees. A total of three hundred and ten years of service to the UT College of Engineering. And countless memories of educating students, working on research projects, and interacting with colleagues. These seven professors are the living history of engineering at the University of Tennessee.

Dr. John W. Prados, an emeritus professor in the Department of Chemical and Biomolecular Engineering (CBE), began his faculty service as an instructor in the fall of 1955. He was named as an assistant professor in 1956. Prados also served as the UT vice president for academic affairs from 1973 through 1988, as the chemical engineering department head in the early 1990s, and as the university's vice president later that decade.

Dr. Edwin G. Burdette, still a full-time professor, joined the Department of Civil and Environmental Engineering (CEE) as a part-time instructor in 1958, and has remained with the university since, with the exception of a stint at the University of Illinois for his PhD in the late 1960s.

Dr. Mongi Abidi, the newly named Cook-Eversole Professor in the Department of Electrical Engineering and Computer Science (EECS), came to the university in 1982 and has been involved in teaching and research at UT for over three decades.

Dr. C.H. (Hal) Aikens, an emeritus professor in the Department of Industrial and Systems Engineering (ISE) joined the university

faculty twenty-eight years ago and served as department head for industrial engineering in the late 1990s.

Dr. Joseph Spruell, the former head of the Department of Materials Science and Engineering, was instrumental in the founding of that department, and began teaching at UT in 1960.

Dr. Mancil Milligan, an emeritus professor in the Department of Mechanical, Aerospace, and Biomedical Engineering (MABE), came to UT as an instructor in mechanical engineering in 1959, serving nine years as head of MABE. He is also an experienced pilot who still flies for the university.

Dr. H. L. (Lee Dodds) joined the nuclear engineering department faculty in 1976 and served as department head from 1997 until his retirement in 2011. He still teaches for the department in his role as an emeritus professor.

Prados expressed appreciation for the awards that he has received, including the Alumni Outstanding Teacher Award in 1967, being designated a Faculty Macebearer in 1997, and receiving the college's prestigious Nathan W. Dougherty Award in 2010. Two recent examples of alumni appreciation were the establishment of the John W. Prados Chemical Engineering Co-op Scholarship by Michael Stone and the establishment of the John W. Prados Professorship in Chemical and Biomolecular Engineering by Malcolm and Harriet Colditz and Michael Stone.

"However, even more significant to me have been the occasions when a former student has told me 'Thanks, you really helped me,'" he added.

Burdette said the most exciting memories he has are of the establishment of the Edwin G. and Patsy Burdette Fellowship in Structural Engineering, which was established by the Winstead family in 1994, and the subsequent naming of the Ed Burdette Hardened Concrete Laboratory in the new John D. Tickle Engineering Building.

Aikens recalled the early days of industrial engineering when faculty and staff felt like one extended family.

"Once a month, we would clear out the conference room and around noon the spouses of faculty and staff would bring in food, cover the conference table with a white linen table cloth and we would have an ad-hoc luncheon," he said. "At the end of the school year, we would meet for a daylong planning retreat, then after dusk we would head over to watch the Kentucky Derby on Dr. Snider's wide-screen TV."

Milligan remembers working with students on the Engineers Day event. One particular project stood out.

"In the early 1960s, I was working with a group of students on an Engineer's Day project, where we built our first solid fuel rocket, named Estabrook Alpha, using a fuel mixture I had gotten from some NASA friends. When we were ready to try the first firing, as only a foolish young faculty member would do, I held the rocket and pointed it out a window toward the lake while the students pushed the firing switch. It worked! Our plan was to fire the rocket up the side of the stadium on a guide wire but the State Fire Marshall got wind of our plans and we had to settle for our Engineers Day firing attached to a large steel frame."

The faculty members also remember many influential administrators and engineers at UT.

Spruell recalled that E.E. Stansbury and Fred Peebles, a former dean of engineering, were very supportive and strong mentors.

Prados also said that Peebles was an outstanding leader.

"Fred's greatest achievement for the college was to initiate the Minority Engineering Scholarship Program (now the Engineering Diversity Programs office) in cooperation with industry, which helped UT to rank as a top producer of minority engineers," Prados said.

Dodds cited Dr. Pete Pasqua, the founder of the Department of Nuclear Engineering, as an influential leader and mentor of both students and young faculty members.

Aikens said that Dr. Bill Snyder, Chancellor Emeritus and former dean of engineering, was consistent in his fairness and integrity.

Abidi said it has been exciting over the years to see the expansion of the EECS department and the progress that has been made over the decades.

"It was wonderful to see the Min H. Kao Electrical Engineering and Computer Science Building come to completion, and to know that our department has come so far," he said. "We have ever greater opportunities for our faculty and students in this state-of-the-art facility."

Dodds is particularly proud of the improved national ranking of the department during his tenure as department head, which increased from

being unranked to being ranked in the Top Ten in the US by *U.S. News and World Report*.

All of the faculty members agree that the students are the best part of the job.

"Every time I visit a local engineering firm, I am rewarded by seeing so many former students," Burdette said. "And every time I teach a class and see students who are genuinely interested, I count that a positive interaction. I am blessed to continue to teach graduate and undergraduate students."

"When a student 'gets' the subject and does well, that is reward for me," Spruell

said. "I also appreciate all of the students who have returned to visit or do additional work with me after graduation."

Aikens agrees that the recognition from students and grateful parents makes it all worthwhile.

"My greatest satisfaction has come from former students who have contacted me years after graduation with stories of their successes, and the ultimate compliment is when the children of those students began showing up in my classes. I am blessed to have played some small part in influencing the future paths of all of those young people I have been privileged to teach."

COE Collaborates with College of Nursing to Build Simulated Health Care Facility

The College of Engineering (COE) and the College of Nursing are collaborating on the renovation of an existing building to improve simulated instruction and research for students across multiple disciplines.

The Health and Information Technology and Simulation (HITS) Laboratory will be housed in the former Student Health Center at 1818 Andy Holt Way. The HITS Lab will feature simulated learning experiences and opportunities to explore research scenarios. The building will add more than seven thousand square feet to simulation learning and health information technology development and research.

"Gaining first-hand knowledge of the impact that health technology has on improving patient care, quality, and safety is critical for nursing students," said Dean Victoria Niederhauser. "Research has shown that when students engage in simulated scenarios in a safe learning environment, they are better prepared to enter into the work force upon graduation."

The \$1.5 million project involves renovating the three-story building. The HITS Lab will take two floors and one floor will house a rare plant herbarium for the Department of Ecology and Evolutionary Biology in the College of Arts and Sciences.

The second floor will include four patient exam rooms; a pediatric unit; a room that functions as an operating room; a birthing room; and an emergency department; storage space; and lockers. It will also contain a debriefing room with an observation and control laboratory where students and professors can observe how other students are handling simulated scenarios live. The experiences can be taped so that students can review how they responded to situations.

The basement level will contain an apartment with a bedroom, living room,



and dining room for simulated learning and collaborative nursing and engineering research projects to tackle health care challenges. For example, HITS co-directors Tami Wyatt, associate professor of nursing, and Xueping Li, associate professor of industrial engineering, plan to conduct a study using new smart-home technologies to assist with independent living for elderly people. These technologies will allow older adults to live safely and independently in their own homes.

"Our primary goal for the HITS Lab is to advance the science of health

information technology and discover ways to enhance consumer health and interprofessional health education, Li said. "We will integrate clinical simulation, distance education, process optimization, and delivery of care using telehealth into an intraprofessional education (IPE) learning experience involving students in pharmacy, social work, advance practice nursing, medicine, and industrial

engineering. I am excited about this collaboration and cannot wait to see HITS in operation!"

Construction is slated to be complete by summer 2013.

Student Health Services moved from its former Andy Holt Avenue building last December. The new Student Health Building, on the corner of Pat Head Summitt Street and Andy Holt Avenue, opened to students in January 2012. For more details, visit <http://ilab.engr.utk.edu/hits/>.



The Health and Information Technology and Simulation (HITS) Laboratory building site.

Engineering Diversity Programs Celebrates 40 Year Anniversary



Ted Dunnville, third from left, a 1982 electrical engineering graduate and MESP student, celebrates commencement with family.



James Pippin with students in 1994.

As the University of Tennessee College of Engineering (COE) prepares to celebrate 175 years of engineering at the university, another important anniversary is also taking place. The college will recognize forty years of engineering diversity programs in 2013.

In 1973, the COE established the Minority Engineering Scholarship Program (MESP), designed to motivate highly qualified African American young people to select engineering careers. Mr. Fred D. Brown Jr. was the first director of MESP and it was his dedication that helped to launch the fledgling program from an initial enrollment of only seventeen African-American students.

Brown graduated from Hall High School in Alcoa, Tennessee, and earned his college degree from the Tuskegee Institute. He did post-graduate work at UT, Tennessee State University, Fisk University, and Vanderbilt University. He taught at Hall High School in Alcoa and Oak Ridge High School. He was the first African-American teacher at Oak Ridge High soon after it was integrated, and became the first African-American member of the Alcoa Board of Education.

In 1999, the MESP was renamed the Diversity Engineering Scholarship Program (DESP) and was incorporated into the

Engineering Professional Practice Office. The college's minority outreach programs were renamed Engineering Diversity Programs (EDP) and incorporated pre-college summer programs for middle and high school students; bridge programs for new freshmen; recruiting initiatives targeted to potential underrepresented students; and retention and mentoring programs.

James Pippin was Brown's successor, and remained director of the Engineering Diversity Program (EDP) until his retirement in 2010.

"It was an honor to be Fred Brown's associate director for MESP. He was my mentor and spiritual advisor," Pippin said. "When Mr. Brown passed the MESP torch to me, he advised me to see a vision for the future of the program, seize my vision, and step into it. Remembering Mr. Brown's advice led to the addition of the following programs: a summer pre-college program for middle school and high school students; summer bridge programs for incoming freshmen; establishment of an initiative called the Tennessee Louise Stokes Alliance for Minorities Program (TLSAMP); a National Science Foundation program for science, technology, engineering, and math (STEM) undergraduate majors; and a graduate research and fellowship program. The torch has now been passed to the current director, Travis Griffin."

Griffin, who was named as director of the EDP in 2010, said in the four decades since the minority outreach programs were established, UT has consistently ranked among the top fifty universities and colleges in the nation for graduation rates of African-American engineering students. The college has graduated more than nine hundred minority students.

"MESP ignited the vision which led to the development of the Office of Diversity Programs," said Griffin. "Through the leadership of Fred Brown and James Pippin, the College of Engineering now offers academic enrichment at the pre-college, undergraduate, and graduate level. The college and university will continue its efforts to build and sustain a nationally diverse engineering program."

In recent years, the EDP has expanded its outreach to Hispanic, Native American, Pacific Islanders, Alaskan Native, and female prospective and current students.

The summer programs have also increased in enrollment with the support of distinguished



Fred Brown with students Robert Phillips and Marily Horhn in September 1973.

corporate sponsors including AT&T and the Bechtel Corporation.

The EDP 40th anniversary celebration will be marked with a special invitation-only luncheon and program on Friday, October 4, at noon after the dedication ceremony of the John D. Tickle Engineering Building. For more information, contact the COE dean's office at (865) 974-5321 or e-mail coe@utk.edu.

EDP also has another very special milestone to celebrate. The UT Board of Trustees recently approved the Fred D. Brown Residence Hall, the first building on the UT Knoxville campus to be named for an African-American person and commemorates Brown's contributions to education and diversity at the university.

The residence hall, currently under construction on Andy Holt Avenue, is the first new residence hall to be built in forty-three years, and the hall will accommodate seven hundred men and women when it opens in 2014.

"The 40th anniversary of Engineering Diversity Programs will celebrate the accomplishments of pre-collegiate, undergraduate, and graduate achievement," said Griffin. "We hope that we will see a good turnout at our event!"



EDP Director Travis Griffin (far left) at the MITES 2012 Awards Ceremony presentation to keynote speaker Alan L. Hill (left), Regional Director of External Affairs for MITES Sponsor AT&T Tennessee, along with former EDP staff member Mito Espinoza (right) and Associate Dean Masood Parang (far right).

Special Feature: Dr. and Mrs. Charles Weaver

Dr. and Mrs. Charles H. Weaver made quite an impression on the University of Tennessee and the College of Engineering, as did the three generations of Weaver family support at UT. Hope Shannon (*BS/Business Admin '69*), C. Hadley Weaver, Jr. (*BS/CE '74*), Jess Weaver (*BS/CE '80, MS/Envr '88*), and Amy Tourville (*MSN '06*), the four Weavers in the second generation, all attended UT for at least one degree. Many of Charles and Ann's grandchildren have also attended or are attending UT for their education.

Dr. Weaver (*BS/EE '43, MS/EE '48*) worked at UT for years. After receiving his master's degree, Dr. Weaver taught in the Department of Electrical Engineering at UT until 1959, during which his teaching was interrupted to complete his PhD at University of Wisconsin.

He left UT to teach at Auburn University, first as the Westinghouse Professor of Electrical Engineering, and later as Head for the Department of Electrical Engineering from 1959 to 1965.

"He left UT for Auburn for five years, but he just loved UT, and had to go back," Hope said.

He came back to UT as dean of engineering from 1965 to 1968 before he became the first chancellor of the University of Tennessee. Later he served as the Vice President for Continuing Education and Dean of the Tennessee Space Institute. He returned to the Department of Electrical Engineering in 1982 upon receiving the first University Professorship at the University of Tennessee.

His students remembered him as an energetic and highly capable teacher whose constant cheerfulness and dedication to electrical engineering education made learning a joy instead of a burden. James Clardey (*BS/EE '66*) appreciated his classes under Dr. Weaver, who he describes as an outstanding and innovative teacher who loved his work.

Dr. Weaver was an active consultant during his career, working with such organizations as the Tennessee Eastman Corporation,



Dr. Charles H. Weaver

Sverdrup and Parcel, Inc., Union Carbide Nuclear Company and Marshall Space Flight Center.

After Dr. Weaver's death in 1997 at the age of 77, Dr. Weaver's spouse, Ann Hampton Weaver, and son, Hadley, created the Charles Weaver Memorial Scholarship Endowment in his honor, to remember the powerful influence Dr. Weaver had on UT and to provide support for future electrical engineering students.

Hadley recalled his father saying that it was always a challenge for UT to attract top-notch graduate students without the availability of good fellowship support. Hadley saw the importance of scholarships and fellowships at UT and wished to help support those following in his father's legacy. Hadley has given to the College of Engineering to support the Charles Weaver Memorial Scholarship and the College Fund for Engineering.

Hope is facilitating the addition of memorial gifts to the Charles Weaver Memorial Scholarship after the death of her mother, Ann, on February 5, 2013. Memorial donations may be made to the University of Tennessee Foundation with reference to the Dr. Charles Weaver Memorial Scholarship.

Enter the third generation of the Weavers, who are still in love with UT like their grandfather. Maggie H. Weaver, one of Hadley's daughters, and Anna Tourville, one of Amy's daughters, are currently attending UT. Maggie is a dual major at UT in electrical engineering and anthropology. She is a promising student with the possibility of medical school in her future. Anna is majoring in civil engineering and is almost ready to graduate.

Ann Shannon (*BS/ChE '96*) and Hope Tourville (*BA/English '10*), daughters to Hope and Amy respectively, cherished their time at UT. Ann is now a hospitalist in Auburn, AL, after completing medical school.

Throughout the generations, the Weaver's have supported UT in one way or another. They have followed in Dr. Weaver's footsteps and both Charles and Ann will always be remembered.

COE Alumnus Chad Holliday Receives Honorary Doctorate from UT at Commencement

Chad Holliday (*BS/IE '70*) was the speaker for the University of Tennessee's Winter Commencement on December 15. Holliday, chair of Bank of America and former CEO of DuPont, also received an honorary doctorate in engineering during the ceremony.

In his remarks, Holliday encouraged graduates to be confident in the high value of their degree and to stay determined in their career goals.

"When you graduate from this university, you can compete on the world stage with anybody, from any time and any place," said Holliday.

He asked the group to have faith in America and its ability

to restore its position as a global power.

"What we have seen in 2012 is a fundamental shift in the key mechanism for a modern society, a modern economy, and that's energy," Holliday said. "Due primarily to American creativity, which has found a way to tap natural gas and oil that's been here all along, we see a route now to energy stability and independence within a couple of decades."

The alumnus urged graduates to protect their integrity and to seek careers with companies and organizations that demonstrate high ethical standards.

A Nashville native, Holliday worked his way up from a

college summer job at DuPont's Old Hickory plant in that city into a thirty-eight year career at DuPont.

Holliday is a member of the National Academy of Engineering and the American Academy of Arts and Sciences. He is currently chair of the National Academy of Engineering. Holliday also chairs the American Energy Innovation Council, whose mission is to re-establish America's energy technology leadership in developing clean energy technologies.

He was also the co-chair of the College of Engineering



Chad Holliday addresses the audience at UT's Winter Commencement.

Campaign Committee during the highly successful Campaign for Tennessee.

Holliday and his wife, Ann Blair Holliday, have two sons, Chad and Scot.

Development Update
Catalytic Challenges Add Philanthropic Momentum



A student celebrates graduation at the
COE Commencement Ceremony.

Diversity Challenge -- \$173,225 in commitments to date
Goal One \$150,000: Met and more!
Goal Two \$250,000: In sight!
Goal Three \$1,000,000: An aspiration for opportunity!

A little over a year ago, **Dwight Hutchins** (BS/ChE '86, Group 9) challenged the college to raise \$25,000 to match his new commitment to create the Engineering Diversity Excellence Endowment. Sitting beside him, Chancellor **Jimmy Cheek** immediately stepped up with \$25,000 from his office, raising the goal to \$50,000 in a mere thirty seconds. A week or two later **Cavanaugh Mims** (BS/NE '86 and Group 9) raised the ante again with a \$25,000 commitment of his own, creating a goal to raise \$150,000 (including these three gifts). With great thanks to the first seventeen additional alumni who have made commitments, Goal One has been reached and we continue to move ahead.

"The goal seemed so large at first, but alumni have been very generous in stepping up to create an important fund to help future generations as we were helped," says Hutchins with a broad smile. "I believe we can reach more than the \$250,000 Goal Two by this fall when we celebrate the 40th Anniversary of the Office of Engineering Diversity and be well on our way to the million dollar mark. This would be a great tribute to Fred Brown who began the program."

The endowment supports programs in the Office of Engineering Diversity—everything from sending students to seminars and professional conferences to augmenting funding for the summer pre-college programs. Discover more about engineering diversity programs at www.engr.utk.edu/diversity/.

To learn more about joining the on-going challenge contact **Adlai Hurt**, Associate Director of Development, 865-974-2779 or ahurt3@utk.edu

Chancellor's Faculty Support Challenge
– Leverage with Immediate Impact

Three New Faculty Endowments Lead College Efforts

A company, a family foundation, and two members of the College of Engineering Board of Advisors are the first in engineering to respond to Chancellor Jimmy Cheek's challenge to endow significant faculty support. It typically takes several years for academic units to see investment earnings from endowed gifts. Through the challenge, the chancellor's office has committed funds so faculty awards can be made immediately to recruit, retain, and recognize outstanding faculty.

The UCOR Faculty Fellow was awarded to **Dr. Jason Hayward** beginning academic year 2012-13.

"By establishing this endowed faculty award at UT, we hope to give students the opportunity to study under the best professors in nuclear education," said UCOR President, **Leo Sain**. "Quality education in the nuclear field is absolutely critical to the pipeline of future nuclear workers for UCOR and companies similar to ours."

UCOR is a partnership between URS, a worldwide leader in environmental work, and CH2M HILL, the United States' largest environmental company.

More recent is the appointment of **Dr. Stephen J. Paddison**, professor of chemical and biomolecular engineering, to receive the first Ferguson Faculty Fellow in Chemical Engineering. This endowment was created by the Ferguson Family Foundation, headed by **Brian Ferguson**, former CEO of Eastman Chemical Company and member of the University of Tennessee Board of Trustees.

A third new endowment has been created by **Joe and Judy Cook** of Nashville, Tennessee, and **Bill and Jenny Eversole** of Austin, Texas. Joe Cook Jr. and Bill Eversole responded quickly to the chancellor's challenge. As members of the College of Engineering Board of Advisors—Joe is a past chair of the board and Bill its current chair—they know the critical dynamic that excellent faculty provide and understand the power of an endowment to inspire further excellence. The Cook-Eversole Professorship has been awarded to **Dr. Mongi Abidi** in the Department of Electrical Engineering and Computer Science.

"These are just the first three in what I believe will be many new endowed professorships, chairs, and faculty fellows in the College of Engineering that take advantage of the chancellor's funding," said COE Dean **Wayne Davis**. "We are fortunate that these leaders understand the leveraging power of a named faculty endowment in helping us recognize outstanding faculty and increase our visibility."

For information about how you can leverage the Chancellor's Faculty Support Challenge with your own gift, contact **Dorothy Bryson**, Senior Director of Development, 865-974-2779 or dbryson@utk.edu.



Dr. Jason Hayward



Dr. Stephen Paddison



Dr. Mongi Abidi

COE Graduates Honored at UT Alumni Board of Directors Awards Dinner

Five College of Engineering (COE) alumni were recognized at the 2012 University of Tennessee, Knoxville, Alumni Board of Directors Awards Dinner, which took place on September 7, 2012, at the Knoxville Convention Center.



Mark Dean

Mark Dean (*BS/EE '79*) was recognized with the Alumni Board of Directors' highest honor, the Distinguished Alumnus Award. A 1979 electrical engineering graduate, Dean began working with personal computers as a chief engineer at IBM in Boca Raton, Florida, after graduation. As a result of his work, he holds three of the original nine patents on the standard IBM personal desktop computer that serves as a basis for all personal computers and has more than forty patents or patents pending.

Now the fellow and vice president of Technical Strategy and Worldwide Operations, Dean's work has garnered him national and international honors. He was inducted into the National Inventors Hall of Fame in 1997 and has racked up numerous accolades, including being named one of the "Innovators of the 21st Century" in 2000 by U.S. News and World Report (only the third African American to hold this honor); CCG Black Engineering of the Year in 1997 and 2000; the National Institute of Science Outstanding Scientist Award; and the US Department of Commerce's Ronald H. Brown American Innovators Award. He is an Institute of Electrical and Electronics Engineers (IEEE) Fellow and a National Society of Black Engineers (NSBE) Distinguished Engineer. A member of the American Academy of Arts and Science and the National Academy of Engineering, he also serves of the COE's Board of Advisors.



John and Ann Tickle

John D. Tickle (*BS/IE '65*) and his wife Ann also received the Distinguished Alumnus Award. John and Ann Tickle exemplify the spirit of giving back. While their financial contributions have made an immediate and noticeable impact on campus, they continue to show their love for their alma mater by giving of their time and enthusiasm—an act that goes even beyond their significant personal gifts to the university. They are advocates for higher education—and UT in particular—with their voices being heard in their communities as well as Nashville.

Ann Tickle has always had a deep passion for education. Not only was it her academic major, it was the focus of her career as host of the popular television show *Romper Room*. Pre-dating Sesame Street, the show was an educationally based program that taught basic skills and encouraged young minds.

John Tickle used his engineering background to build a successful manufacturing company, Strongwell Corporation, on principles of integrity and solid hard work. Tickle, who earned the rank of Eagle Scout, received the Heroism Award from the National Court of Honor of the Boy Scouts of America in June 2012.

John Tickle also received the 2013 ACMA Lifetime Achievement Award from the American Composites Manufacturers Association (ACMA), the composites industry's largest trade group in the world.

Together, the Tickles are a team with personal values that have led them to achieve excellence in all that they do. The Tickles served as vice chairs for the recent Campaign for Tennessee. John Tickle also served on the Engineering Campaign Executive Committee and the UT Athletics Board and has served on the COE's Board of Advisors. Ann Tickle has been an active member of the Development Council and Alliance of Women Philanthropists.



H.M. "Hash" Hashemian

Hashem Mehrdad "Hash" Hashemian (*MS/NE '76*) received the Alumni Professional Achievement Award. A recognized leader in the nuclear industry, Hashemian began his career in 1977 when he co-founded Analysis and Measure Services Corporation (AMS). Formed around technologies he first developed while a graduate student in the engineering college, AMS now has offices in the United States, Australia, Spain, South Korea, and Switzerland.

Under Hashemian's leadership (he became president and CEO in 1985), AMS has become the pre-eminent supplier of equipment, training, and services for response time testing and on-line calibration of temperature and pressure instrumentation in nuclear power plants. Nearly all of the one hundred and four nuclear power plants currently operating in the United States, and many in Europe and Asia, have employed his services.

Hashemian's list of professional accomplishments includes three doctoral degrees and two books that have been translated into Chinese, Japanese, Korean, and Russian. Additional publications

include ten book chapters, two hundred conference papers, and more than fifty peer-reviewed articles. He has spoken at nearly one hundred conferences worldwide and chaired and hosted many more.

In February of 2011, Hashemian was honored at the White House with a Tibbetts Award in recognition of the critical role that AMS has played in research and development.



Stefan Duma

investigates human tolerance to impact loading as it relates to automobile safety, military restraints, and sports biomechanics.

Duma's research has established the former Torchbearer as an expert and pioneer in his field and has attracted national attention for his research on impact biomechanics. *The New York Times*, ABC News, ESPN, *Sports Illustrated*, CNN, *Time*, and *U.S. News & World Report* have covered his research. Under his leadership, the Virginia Tech-Wake Forest School of Biomedical Engineering and Science received the 2011 Brain Trauma Foundation Award. Duma is a frequent speaker for local civic groups, grade schools, and high school football teams.



Kristin Qualls

Kristin Qualls (*BS/CE '03*) also received the Alumni Promise Award. Qualls has already demonstrated distinctive achievement in the field of civil engineering. Going to work with the Tennessee Department of Transportation (TDOT) immediately after graduation, Qualls has quickly worked her way up the ranks of the

Region One Construction Division. During her career, she has led some of TDOT's most daunting projects such as the SmartFIX40, a \$275 million project that included a total close of I-40 in downtown Knoxville for thirteen months to widen the interstate from four to six lanes.

Qualls is currently the project engineer for the Henley Street Bridge Rehabilitation project, a \$25 million project that includes dismantling the eighty-two year old bridge to the arches and rebuilding it to include an additional lane.

In addition to her professional achievements, Qualls is extensively involved with her alma mater, serving as the keynote speaker for hundreds of potential engineering students from high school s across the region during the college's Engineers Day.

Charles Wharton (*BS/IE '65*) was a recipient of the Alumni Service Award. Wharton's service to the university began even before he earned his degree. As a member of the Student Government Association and the Kappa Alpha fraternity, he participated in service projects and worked to improve the on-campus student experience.

Shortly after graduating, Wharton began giving back to UT—a habit that has continued for more than four decades and culminated with his induction into the Torchbearer and Legacy societies. Even more than his generous financial gifts, it is Wharton's personal dedication and no-nonsense leadership that will leave the deepest mark of the quality of the university.

In 1993, Wharton was invited to join the UT Development Council and he has continued to service as a member of that group for twenty years. He is also a member of the UT College of Veterinary Medicine Board of Advisors, the UT Research Foundation's Board of Directors, the UT Alumni Association Board of Governors, the UT Foundation board, and the UT Board of Trustees.

Today, Wharton remains deeply committed to fulfilling the work he began with his late wife, Julie, who shared his dedication to the College of Veterinary Medicine.



Charles Wharton



"I am so thankful to be a recipient of the John W. Prados Chemical Engineering Co-op scholarship. As required by the scholarship, I am majoring in chemical engineering and minoring in business administration while simultaneously completing a co-op with the Dow Chemical Company. Receiving this scholarship has reduced my financial burdens, allowing me to focus more on the rigorous engineering curriculum and to pursue other leadership and service positions on campus. I have been blessed with the opportunity to serve the University of Tennessee as a Resident Assistant, College of Engineering Ambassador, and Student Alumni Associate. I would not have been able to pursue these activities if I had not received financial support through this scholarship program.

I am incredibly grateful for this scholarship, not only for the monetary relief but also for the inspiration with which it has provided me. Without this scholarship, I would have never thought to pursue a business minor, but I have found that the business minor, in combination with my co-op, has greatly enhanced my education. I feel that I am now a more well-rounded individual with a better understanding of my discipline and the world around me. Following graduation, I plan on continuing my career in the chemical industry, eventually transitioning into management and pursuing an MBA. Overall, becoming a John W. Prados scholar has given me the opportunity to gain leadership skills both on-campus and in the 'real world,' helped me to find my passion in industry, and set me up for a successful career doing what I love."

Rebekah Patton '14
John W. Prados Scholarship Recipient

inspire

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Events & Awards

COE Hosts 2012 Student & Donor Appreciation Luncheon



COE Dean Wayne Davis addresses the crowd at the 2012 Student & Donor Appreciation Luncheon

The University of Tennessee College of Engineering hosted the 2012 Student & Donor Appreciation Luncheon at the Knoxville Museum of Art on Thursday, September 13. Guests included one hundred thirty-five administrators, faculty, staff, student recipients of college-wide scholarships, donors, and special guests who all enjoyed a delicious luncheon and an opportunity to get acquainted.

Dean Wayne Davis introduced the keynote speaker, Mr. Dwight Hutchins. A UT alumnus with a bachelor's degree in chemical engineering, Hutchins is currently the Senior Executive, Global Managing Director, Health and Public Strategy with Washington D.C.-based company Accenture. Hutchins leads project teams around the world, helping clients define their strategy, reorganize,



Keynote speaker Dwight Hutchins; student speaker Morgan Baltz; UT Chancellor Dr. Jimmy G. Cheek; and COE Dean Wayne T. Davis at the 2012 Student & Donor Appreciation Luncheon.

increase effectiveness, reduce costs, and transform their operations to become high performing public sector organizations. In addition to his BS degree, Hutchins received an MPA. from the John F. Kennedy School of Government at Harvard University and a MBA in marketing from the J.L. Kellogg Graduate School of Management at Northwestern University.

Morgan Baltz, a senior major in chemical engineering, was the student speaker. Baltz is the president of the student chapter of the American Institute of Chemical Engineers and served as chair of the 2012 Engineers Day as part of her role in Tau Beta Pi, the engineering honors society.

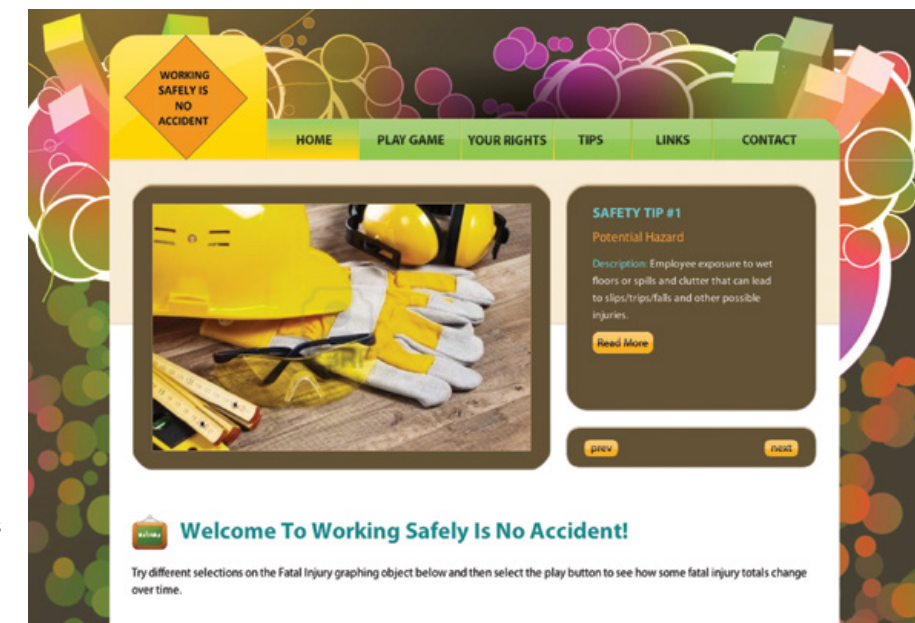
ISE Professor and Student Collaborate on Grand Prize Winning National App Contest Project

A team comprised of members of the Department of Industrial and Systems Engineering (ISE) and the Construction Industry Research and Policy Center (CIRPC) won the "Safety in the Workplace Innovator Award" grand prize of \$15,000 in the Worker Safety and Health App Challenge, a national competition created by the Department of Labor.

ISE professor Dr. Xueping Li and graduate student Alison Yu Huang collaborated with CIRPC members to create the interactive website "Working Safely Is No Accident," (<http://ilab.engr.utk.edu/cirpc/index.html>) aimed at teaching workers ages 13-24 about factors that increase workplace safety. The site features a game in which users evaluate relative probabilities of interesting events. The concept is then applied to workplace safety, with additional links to work-safety sources.

The goal of the contest was to encourage entities to build tools to educate the public about safety in the workplace.

For more information about the contest, visit the Department of Labor's website at <http://workersafetyhealth.challenge.gov>.



The Working Safely Is No Accident Web Site home page.

Events & Awards

HITES Program Receives National Recognition

The College of Engineering's High School Introduction to Engineering Systems (HITES) program has been selected by the National Association of Multicultural Engineering Program Advocates (NAMEPA) as its 2013 Outstanding Pre-College/Community Organization Award recipient.

HITES offers a one-week residential experience for rising eleventh and twelfth grade students. The program provides



Dr. Richard Bennett (center), director of the college's Engage freshman engineering program, supervises students working on research projects during the HITES summer program.

an introduction into engineering, college life preparation, and showcases the applications of math and science.

The award recognizes HITES for inspiring students through college preparatory, retention, and graduation. The program serves as a model for research institutions and minority-serving institutions to increase minority engineering enrollment. HITES was recognized at the 34th Annual NAMEPA National Conference in West Lafayette, Indiana, in February.

Since the beginning of 2001, HITES has provided the experience to over two hundred high student juniors and seniors. In 2011, 86 percent of seniors decided to major in engineering once they enrolled in engineering.

The NAMEPA Outstanding Pre-College/Community Organization Award was established to honor pre-college programs, community organizations, or individuals who have been active in increasing the participation of minorities in engineering disciplines at the pre-college or community level.

NAMEPA is a national network of educators and representatives from industry, government, and nonprofit organizations who share a common commitment to improving the recruitment and retention of African Americans, Hispanics, and American Indians earning degrees in engineering. For more information about NAMEPA, visit <http://www.namepa.org>.



Students collaborate on experiments in the HITES program.

COE Emeritus Professor Receives Honor from India



Dr. Bimal Bose (left) receives his honorary Doctor of Science degree from Shri Pranab Mukherjee, the president of India at the 15th Annual Convocation of Bengal Engineering and Science University (BESU).

Dr. Bimal Bose, Emeritus Professor of Electrical Engineering and the former Condra Chair of Excellence in Power Electronics, was honored with the Doctor of Science (Honoris Causa) degree from the President of India in the annual convocation of Bengal Engineering and Science University (BESU) on January 19, 2013, in recognition of his outstanding contribution in engineering and his dedicated service to the nation.



Events & Awards

COE Celebrates 100th Engineers Day!



Engineers Day Keynote Speaker Mark Cox.

On Thursday, October 25, 2012, close to one thousand two hundred students from fifty-five different high schools (and some home-schooled students) traveled to UT's Knoxville campus to explore and learn about the various aspects of 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.

Mark Cox, Vice President-Worldwide Engineering and Construction for Eastman Chemical Company in Johnson City, Tennessee, served as keynote speaker. He holds a bachelor's degree

JIAM Hosts Open House

The Joint Institute for Advanced Material (JIAM) hosted an open house on Wednesday, February 6, 2013, to formally open the new JIAM Electron Microscopy Center. The two new powerful Zeiss electron microscopes are among the most advanced in the world, and will open up exciting new research and teaching options for faculty and students. Currently housed in room 307 in the Science and Engineering Research Facility (SERF), the microscopes will eventually be moved to the new JIAM building on the university's Cherokee Farm Campus when it opens in 2014. Guests enjoyed



Dr. George Pharr, director of JIAM, discusses the new Zeiss electron microscopes at the open house.

in chemical engineering from UT and an MBA from Northwestern University's Kellogg School of Management.

Engineers Day features five competitions for visiting students. Results for this year's Quiz Bowl, Egg Drop Competition, ASCE High School Balsa Wood Bridge Competition, Food Battery Competition, and the Radiation Shielding Competition and the rules for the Egg Drop Competition, ASCE High School Balsa Wood Bridge Competition, Food Battery Competition, and the Radiation Shielding Competition may be viewed and downloaded on the Engineers Day web page at <http://www.engr.utk.edu/ed/>.

Engineers Day 2013 will be held on Thursday, October 24, 2013.



Visiting high school students view exhibits at the college's annual Engineers Day event.

refreshments and a tour of the laboratory as well as discussion about the capabilities of the new equipment. The open house was followed by a special lecture, "Atoms Under the Microscope" by Dr. Stephen J. Pennycook. Pennycook is an Oak Ridge National Laboratory (ORNL) Corporate Fellow as well as a joint UT-ORNL faculty member in the Department of Materials Science and Engineering and an adjunct professor with the Department of Physics and Astronomy at Vanderbilt University.



Dr. Stephen Pennycook provides insights during his lecture at the JIAM open house in February.

Events & Awards

The College of Engineering 2012 Homecoming Alumni Barbeque on The Hill took place on Saturday, November 3, on the engineering campus. A group of two hundred twenty-five including alumni, friends, and retired faculty enjoyed a barbeque lunch catered by Dead End BBQ, a Knoxville restaurant owned by an engineering alumnus. The event also featured student organization demonstrations and games for both adults and children. Alumni and their guests also had an opportunity to tour the new Min H. Kao Electrical Engineering and Computer Science Building.

The event was followed by an exciting football game, with a UT Volunteers victory over Troy.

Please save the date for this year's Homecoming, which is scheduled for November 9th preceding the UT-Auburn football game. More details will be available in August online at www.volscconnect.com and in the fall issue of Tennessee Engineer.



COLLEGE OF ENGINEERING ALUMNI BBQ HOMECOMING



Guests register for the Homecoming 2012 activities.



Nuclear engineering professor and department head Dr. Wes Hines talks with guests at the COE Homecoming 2012 barbeque.



Chowing down on barbeque at the college's Homecoming 2012 event.

Alumni News

The US Small Business Administration (SBA) has named Knoxville-based Management Solutions, LLC (MSLLC), owned by COE graduate **Misty Mays** (BS/IE '88) the National Subcontractor of the Year. The award was announced at a breakfast event in May 2012 as part of SBA's National Small Business Week celebration in Washington, D.C. Mays' husband, **Sam Mays** (BS/CE '85, MS/EnvE '97) who is vice president of MSLLC, is also a engineering alumnus. Management Solutions was selected from among ten regional subcontractors of the year. The award honors small businesses that provide outstanding goods and services to the federal government as subcontractors. The company was nominated by the Small Business Programs Office of Oak Ridge National Laboratory (ORNL) for its work in project management, project controls, and related IT and administrative support.

Governor **Bill Haslam** also recognized Mays in August 2012 with a Certificate of Appreciation for the leadership and business successes that she and her company have demonstrated.

In addition to the Knoxville headquarters, MSLLC has satellite offices in Louisville, Kentucky, and Atlanta, Georgia, and has on-site staff at sites in Tennessee, Kentucky, Missouri, Illinois, Indiana, and Ohio. The company was recently named to the Inc 5000 list of fastest growing private companies in the United States.

For more details about the award winners and other national Small Business Week events, visit www.NationalSmallBusinessWeek.com. For information about MSLLC, visit www.managementsolutionsllc.com.



Marie Johns, Deputy Administrator (left); Karen Mills, Administrator (second from right); and John Shraka, Associate Administrator for Government Contracting and Business Development (right); all with the U.S. Small Business Administration, present the National Subcontractor of the Year Award to Misty Mays of Management Solutions, LLC.



Tennessee's U.S. Senators Lamar Alexander (left) and Bob Corker (right) congratulate Misty Mays (center) and her husband Sam Mays after the national award presentation ceremony in Washington, D.C.



Dr. Jamie Porter

Dr. Jamie Anderson Porter (BS/NE '08, MS/NE '09, PhD/NE '12), the first female African-American student to graduate from the University of Tennessee with a PhD in nuclear engineering, participated in the "Rising Stars in Nuclear Science and Engineering" Symposium on March 5, 2013, at the Massachusetts Institute of Technology. The event focused on current research in nuclear science and engineering and related.



Mary French

Mary French (MS/CE '10) EIT and senior project manager and designer, Mallia Engineering Co., Knoxville, Tennessee, was named to the "Top Ten Under Forty" list by ENR Southeast. The competition recognizes up-and-coming industry leaders from across the Southeast. Now in its third year, the recognition has gained considerable traction and the current competition, which was conducted on a national basis via a series of regional contests, drew over seven-hundred nominations. Judging criteria includes career experience, industry leadership, community service, and other professional factors. For more information, visit this blog post: <http://tinyurl.com/cxxbzum>.

Mike Wrye (BS/CE '91) Vice President and co-owner of Lose & Associates in Nashville, Tennessee, was recently awarded the Outstanding Planning Award from the Tennessee Chapter of the American Planning Association (TAPA) on behalf of his firm. The award recognizes the exceptional work of Lose & Associates on the Greensboro North Transit Ready Development in Gallatin, Tennessee. Greensboro North is one of the first communities in Tennessee designed around the convenience of a transit station. The Nashville Metropolitan Organization has identified the Gallatin site as one of thirteen proposed station sites as part of its Northeast Corridor Plan.



From Left: Mary McClendon Vavra, Lose & Associates; Lee Zoller, Green & Little; Mayor Jo Ann Graves, City of Gallatin; Anthony Holt, Sumner County Executive; and Mike Wrye, Lose & Associates at the award presentation.



Billy Fulghum (right) consults on the site of the Extreme Makeover: Home Edition build in January 2012.

Fulghum MacIndoe and Associates, co-founded by **William “Billy” Fulghum** (*MS/CE ’92*), donated the company’s civil engineering services to the recent Knoxville Extreme Makeover: Home Edition program on ABC TV that featured the construction of a new home for Daniel and Mandy Watson, founders of Restoration House of Tennessee, a non-profit organization that assists low-income single mothers. The company recently marked its tenth year in January, 2013. Fulghum MacIndoe and Associates is a consulting engineering firm providing civil, environmental, structural, and electrical services to commercial, residential, and industrial clients.

1970s

Ed Mahoney (*BS/CE ’77, MS/CE ’78*) was named to the architectural firm of Barge, Waggoner, Sumner, and Cannon Inc.

1980s

Marty Margetts (*BS/IE ’88*) has been appointed vice president for human resources for CHRISTUS Health—a Catholic not-for-profit health system headquartered in Dallas, Texas.

Victor Mills (*BS/ME ’85*) has joined the Knoxville office of engineering and architectural firm Barge, Waggoner, Sumner, and Cannon Inc. in the Industrial and Building Services Group as manager of mechanical services.

Jeff Odum (*MS/EngAdmin ’83*), director of operations at IPS, has been appointed teaching fellow in North Carolina State University’s College of Engineering for the Bioprocess Training and Education Center.

Fred Swisher (*BS/EE ’85*) received a Lockheed Martin NOVA Award for Full Spectrum Leadership in November of 2012, in a ceremony at the National Air and Space Museum in Washington, D.C. His leadership directly impacted the development and execution of the Apache Performance-Based Logistics (PBL) program, which was recognized by the US Secretary of Defense as a 2011 PBL Program of the Year. Swisher works at Lockheed Martin’s Missiles and Fire Control facility in Orlando, Florida.

2000s

2000s **Andrew Howe** (*BS/CE ’05, MBA/ BusAdmin ’11*) has joined the Chattanooga office of Barge, Waggoner, Sumner, and Cannon Inc. as a project engineer on the expanding Water Services Team.



Dr. Rashara Givhan

Dr. Rashara Givhan (*MS/EE ’97, UTSI*) was recognized as a Technology All-Star at the 2012 Women of Color STEM Conference in Dallas, TX. She is currently a Project/Lead Manager with Boeing.



Dr. Bryan D. Haynes

Dr. Bryan D. Haynes (*BS/ Aero ’85, MS/Aero ’87, PhD/ ME ’91*) received the Rodney D. Chipp Memorial Award from the Society of Women Engineers at the national engineering organization’s 2012 convention in Houston, Texas. Haynes is the director of the Global Nonwovens Center of Excellence at the Kimberly-Clark Corporation in Roswell, Georgia. Haynes is a member of the advisory board for the Department of Mechanical, Aerospace, and Biomedical Engineering (MABE) and is also the lead liaison for Science, Technology, Engineering, and Math (STEM) recruiting at the University of Tennessee. Haynes was chosen for the award in recognition of his recruitment of female students from the university and his mentoring of women engineers at Kimberly-Clark. During his tenure, more women have joined the Kimberly-Clark workforce and have advanced to become team leaders at the company.

Memorials

John Eldon Atchley (*BS/IE ’66*) died on November 14, 2012. He was a resident of Kingsport, Tennessee.

Charles L. Chavis (*BS/EE ’49*) died on September 10, 2012. He was a resident of Memphis, Tennessee.

David Stuart Fonde (*BS/EE ’52*) died on December 2, 2012. He was a resident of Spring Hill, Tennessee.

James Howard French (*BS/CE ’83, MS/CE ’86*) died on November 8, 2012. He was a resident of San Diego, California.

Mark W. Gregory (*BS/CE ’66*) died on June 16, 2012. He was a resident of Lakeland, Tennessee.

Conrad Witten Hale (*BS/CE ’48*) died on September 30, 2012. He was a resident of Morristown, Tennessee.

Dr. Dennis Wayne Hetzner (*PhD/ME ’80*) died on May 7, 2012. He was a resident of Baltimore, Maryland.

Nathaniel B. “Barney” Johnson Jr. (*BS/CE ’48*) died on May 31, 2012. He was a resident of Hendersonville, Tennessee.

Thomas Hawkins Landrum (*BS/EE ’47*) died on August 31, 2012. He was a resident of Oxford, Mississippi.

James Bradley Mankin Jr. (*BS/EE ’57, MS/EE ’65, PhD/EE ’69*) died on February 4, 2013. He was a resident of Oak Ridge, Tennessee.

Dr. John D. Metzger (*BS/NE ’75*) died on October 12, 2012. He was a resident of Irwin, Pennsylvania.

Tony Charles Min (*MS/ME ’53, PhD/EngSci ’69*) died on June 19, 2012. He was a resident of Greensboro, North Carolina.

Daniel Melvin Reagan (*BS/EE ’69*) died on October 30, 2012. He was a resident of Knoxville.

Charles Ernest Searcy (*BS/EE ’54*) died on November 16, 2012. He was a resident of Knoxville.

Robert Mitchell Werner (*BS/CE ’81*) died on October 29, 2012. He was a resident of Lancing, Tenn.

Robert Lent Williams (*BS/EE ’60*) died on August 2, 2012. He was a resident of Decherd, Tennessee.

Richard Earl Wintenberg (*BS/EE ’57, MS/EE ’63*) died on August 9, 2010. He was a resident of Farragut, Tennessee.

Special Recognitions

Dr. Igor Alexeff, an emeritus professor in the Department of Electrical Engineering and Computer Science, died on October 25, 2012. He had a lifelong enthusiasm and talent for theoretical mathematics, experimentation and invention. At the age of 17, he was one of forty finalists selected to present their projects in Washington for the annual Science Talent Search, which drew over sixteen thousand contestants from across the nation. He was awarded a scholarship, and finished in the top twelve. Later, he was awarded a full college scholarship, and he chose to attend Harvard University, where he graduated with honors with a BA in Physics in 1952. He received his PhD in nuclear physics from the University of Wisconsin in 1959, followed by a postdoctoral

Fellowship from the NSF, which he chose to complete at the University of Zurich in Switzerland. After completing his postdoc work, he was offered a position at ORNL, where he worked on controlled thermonuclear fusion, until 1970, when he accepted a position with the University of Tennessee, where he taught and worked in industrial plasma engineering. Alexeff retired from teaching in 1996, but he retained his office and research lab, and continued his work, until 2011. He was co-founder of the IEEE NPSS, and a lifetime Fellow of the IEEE, and Fellow of APS.



Dr. Igor Alexeff



Kenneth E. Boring

Kenneth Edwin Boring (*BS/CE ’50*), 87, of Dalton, Ga., died on April 8, 2012. A businessman, philanthropist, and humanitarian, Boring was a strong supporter of the College of Engineering and athletics at the University of Tennessee, Knoxville.

Before completing high school, Boring joined a combat engineering battalion in 1943. He survived several ground engagements including the Battle of the Bulge. The next year, Boring helped build bridges and rafts to support the US infantry crossing the Rhine River.

After three years in the armed forces, Boring entered UT as a co-op student, working for Lambert Brothers Inc., a crushed-stone business owned by his uncles. Professor Armour Granger was a strong influence in Boring’s life. He challenged Boring academically while Boring struggled to balance his work and his studies.

Boring built a successful stone business with his brother, James, after college, and they later gained controlling interest in the Hardwick Holding Company of Dalton.

In 1999 he established the Kenneth E. Boring Civil Engineering Cooperative Scholarship Endowment with a gift \$250,000. He hoped his endowment would encourage students to fully evaluate the many opportunities available in the aggregate industry.

“I am truly grateful for being a recipient of the Boring Scholarship in the past. I can honestly say it was beneficial to driving my passion to continue onto graduate school and form the engineer I am today,” James Ensley, graduate student in civil engineering stated. James held the scholarship in 2011-12.

The Boring Scholarship has helped twenty-six engineering students to date. Boring’s support helps students recognize that success is earned.

“Ken kindly emphasized to me the importance of hard work and sacrifice in entrepreneurial success,” said Mark Adams, senior in civil engineering after dining with Mr. and Mrs. Boring last year.

Boring’s legacy will live on at UT through his love for engineering shown in his philanthropy.

Calendar

Spring 2013

Classes EndApr 26
Study Day.....Apr 29
Exams Apr 30, May 1-3, 6-7
Graduate Hooding May 9
Commencement May 8-11
Offical Graduation Date..... May 11

Fall 2013

Classes Begin.....Aug 21
Labor Day..... Sept 2
1st Session Ends Oct 9
2nd Session Begins Oct 10
Fall Break.....Oct 17-18
Classes End Dec 3
Exams Dec 5-6, 9-12
Graduate Hooding Dec 12
Commencement Dec 13
Offical 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 & Biomolecular974-2421
Civil & Environmental974-2503
Electrical & Computer Science 974-3461
Industrial & Information974-3333
Materials Science..... 974-5336
Mechanical, Aerospace &
Biomedical974-2093
Nuclear974-2525

Administration & Programs

Communications..... 974-0533
Dean's Office.....974-5321
Development974-2779
Engineering Advising Services 974-4008
Engineering Diversity Programs.....974-1931
Engineering Fundamentals974-9810
Engineering Professional Practice.....974-5323
Engineering Research974-8360
Engineering Student Affairs..... 974-2454
Finance & Admin. Affairs.....974-5279

Research Centers

Materials Processing974-0816
Maintenance & Reliability974-9625
Scintillation Materials..... 974-0267
Transportation Research974-5255
Intelligent Systems and
Machine Learning974-5803
CURENT974-9720
Innovative Computing Laboratory974-8295

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