Tickle College of Engineering Named for Distinguished Alumnus John D. Tickle
Dean’s Message

Education Is What Fuels Success!

What a difference four fast months can make. When we prepared our FY16 Annual Report and the Tennessee Engineer for last fall, I had no idea how much would happen in the short time between then and now! Our college is now named the Tickle College of Engineering, based on the recognition of the many investments made by our alumni and friend, Mr. John D. Tickle. Our feature article goes into more detail, but our appreciation goes out to him and his staff and the Provost’s staff for having assisted the college in completing the John D. Tickle Engineering Building, helping us to negotiate critical hiring of our Governor’s Chairs; helping us to solidify recurring funds from the state as well. I’m deeply honored and will try to live up to that billing.” We are deeply grateful for their commitment to our college and I encourage you to read our feature article and learn more about the investments that the Tickle family has made and continues to make.

A second and very significant event is that we welcomed the newest member of the UT Big Orange family, our new Chancellor, Beverly Davenport, on February 15. We look forward to her leadership in continuing to move our university forward in the months and years ahead. At the same time, I will miss our dear friend and colleague, former Chancellor Jimmy Cheek, who has now returned to be a full-time faculty here at UT. Cheek was instrumental in helping our college move forward through the tough period of the 2007-2009 recession. Our sincere appreciation goes out to him and his staff and the Provost’s staff for having assisted the college in completing the John D. Tickle Engineering Building, helping us to negotiate critical hiring of our Governor’s Chairs; helping us to solidify recurring funds from the governor’s office needed to increase the faculty and staff size in our rapidly growing college; for completion of Phase 1 of the Joint Institute for Advanced Materials; for his leadership role in moving the planning and architectural design forward on our next new engineering complex; and his vision of moving our institution further along the journey to becoming a Top 25 public university.

I am overwhelmed with the progress that our faculty, staff, and students have made just in the last six months as we continue our path of increasing the quality of every aspect of our mission in providing engineering education to our students. Please take a look at the wonderful things that are happening as summarized in the following pages. We express to all of our friends and alumni our appreciation for your involvement in our college. If you have not become involved, please consider doing so as I can assure you that it will be a very rewarding experience. Our students are the best and they, along with our alumni, are taking on the grand challenges that face our world today. It gives me great confidence that our future is bright and that those grand challenges will indeed be reduced if not completely solved.

Lastly, this issue represents the final issue to be prepared by our current Director of Communications, Kim Cowart. Kim retired on February 24 after serving in her position as director and as writer and editor of Tennessee Engineer. Kim, we wish you the very best in your retirement and we thank you for your 19 years of service in helping us to communicate worldwide with our many constituents.

Wayne T. Davis
Wayne T. Davis Endowed Chair in Engineering
Tickle College of Engineering Named

The University of Tennessee Board of Trustees voted in October 2016 to name the College of Engineering for distinguished alumnus John D. Tickle. It marks the second time in the campus’s 222-year history that a college has been named for an alumnus and benefactor. Tickle, a 1965 industrial engineering graduate from Bristol, Tennessee, is chairman of the Strongwell Corporation.

“My goal is for the University of Tennessee to be known for their education and the product they put out,” said Tickle. “(My wife) Ann and I both believe that education is what fuels success—not just our own success, but the success of UT and the state as well. I’m deeply honored and will try to live up to the billing.”

The naming and the foundation of support reflects better align the college with its aspirational top-ranked public university peers. The college joins the Haslam College of Business as the only named UT Knoxville colleges with benefits that extend well beyond the new name.

John Tickle began supporting UT just a year after he graduated. A recent transformational gift will impact every aspect of the college—from students and faculty to research and facilities.

“This is a historic day for our university and our state,” said former UT Chancellor Jimmy Cheek. “We want to thank John, Ann, and the Tickle family. Their support will accelerate the college’s bold plans for growth and improvements and the university’s plans for becoming a top-ranked public research university.”

Hundreds of students, faculty, staff, and alumni turned out on November 3, 2016, for an afternoon celebration honoring the naming of the Tickle College of Engineering.

The gift offers Dean Wayne Davis—and future deans—a flexibility to use the funds in any way to enhance the college’s excellence. Dean Davis has chosen initially to designate the funds for:

- The Tickle Graduate Fellowships, which will fund doctoral students across all of the college’s academic programs
- Tickle Professorships to recognize excellent faculty, helping the college recruit and retain these important scholars
- The addition of a team of professional advisors over the next year to provide more guidance to undergraduate students about their academic goals
- Davis said that naming the college enables the next big steps in its journey. “John and Ann want our students to have the very best education and experience here so that they will graduate as the most versatile and well-trained professionals in their industries.”

Davis said that seeing so many changes across the campus gives him goosebumps. He considers the cranes, road disruptions, and new buildings a sign of the university’s stability and health. He noted the contrast to the perception of the college just after he graduated, relating a conversation that angered but also inspired him.

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At a lunch with colleagues once, someone asked where he had gone to school and he proudly answered, “The University of Tennessee.”

“John and Ann’s support and partnership have been vital in our recent growth and in laying the foundation for us to be a successful college for years to come,” said Davis. “As a dean, it’s been fantastic to see those developments, but as an alumnus it means a lot to me personally, as well. This is the best time ever to be an engineer at UT from the University of Tennessee.”

Acknowledging that much has changed since then, he added, “When someone says ‘I’m a University of Tennessee graduate’ I want people to say ‘Wow!’”

The Tickles have invested in many UT programs over the years, including support for professorships, building projects, and state initiatives. John Tickle was appointed to the UT Board of Trustees in 2015. The John D. Tickle Engineering Building opened in 2015, the John and Ann Tickle Small Animal Hospital opened in 2013, the John and Ann Tickle Athletic Development Suite is a key feature of the Brenda Lawson Athletic Center, which opened in 2006.

The Tickles have committed a significant portion of the private dollars needed in the state’s funding formula for an additional new academic building for engineering. The planned new building will house nuclear engineering, freshman engineering programs, and student design and innovation laboratories.

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John D. Tickle

The Tickle College of Engineering announced, in fall 2015, its part of the Journey to the Top 25 Campaign with a goal of $150 million. John Tickle is chair of the engineering campaign. The campaign, and to date over $165 million has been committed.

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National Academy of Engineering Elects EECS Emeritus Professor as Member

For the second year in a row, the prestigious National Academy of Engineering (NAE) has elected a faculty member affiliated with the Tickle College of Engineering (TCE) to its ranks. Professor Emeritus Bimal Bose was selected for the class of 2017.

“This honor has come to me very late in my career, but I am thrilled with the news,” said Bose, who worked in the Department of Electrical Engineering and Computer Sciences (EECS). “I would like to express my immense gratitude to the university, and particularly to TCE Dean Wayne Davis and the head of the department, Leon Tolbert, for giving me a favorable environment in pursuing my intellectual activities.”

Bose came to UT in 1987 as the Condor Chair of Excellence in Power Electronics, tasked with building up the then-fledgling power electronics program. For the next 15 years, he helped strengthen the program and paved the way for landing the National Science Foundation back to its ranks.

Center for Ultra-Wide-Area Resilient Electric Energy Transmission Networks, or CURRENT.

During those years, Bose was honored seven times by the Institute of Electrical and Electronics Engineers, including being named a fellow and receiving both a lifetime achievement award and the Millennium Medal for Outstanding Contributions in Power Electronics.

“I have helped pioneer the advancement of artificial intelligence applications in power electronics and motor drives which are widely applied in industrial systems,” said Bose. “In any technology advancement, our goal should be its application solely for the benefit of mankind.”

In addition to Bose, current UT faculty who are NAE members include two UT–Oak Ridge National Laboratory Governor’s Chair Professors—Yulu Liu, the Governor’s Chair for Electric Power Grids, and Steve Zinkle, the Governor’s Chair for Nuclear Materials—and two computer science faculty members—Mark Dean, the John Fisher Distinguished Professor, and Jack Dongarra, a University Distinguished Professor.

NAE President C.D. Mote, Jr. said membership honors those who have made outstanding contributions to “engineering research, practice, or education” and to pioneering new fields and approaches.

For more information, visit www.nae.edu.

Wirth Named Fellow of AAAS

Governor’s Chair in Computational Nuclear Engineering and Department of Nuclear Engineering Professor Brian Wirth was one of four UT researchers to be named 2016 fellows of the American Association for the Advancement of Science (AAAS). Wirth is a globally recognized expert in nuclear materials and how such materials behave in radioactive environments. He has received the US Department of Energy Ernest Orlando Lawrence Award, given to researchers in energy research and national security, and the Mishima Award, given by the American Nuclear Society for outstanding work in nuclear fuels and materials research.

The fellows were inducted in February 2017 at the AAAS Annual Meeting in Boston. AAAS is the world’s largest multidisciplinary scientific society and publisher of the Science family of journals. The AAAS Council elects fellows whose “efforts on behalf of the advancement of science and its applications are scientifically or socially distinguished.” It was founded in 1848 and includes 254 affiliated societies and academies of science serving 10 million individuals.

Vaidya Awarded SPE Composites Person of the Year

Institute for Advanced Composites Manufacturing Innovation (IACMI) Chief Technology Officer and Governor’s Chair in Advanced Composites Manufacturing Uday Vaidya was honored during a special ceremony at the 2016 Society of Plastics Engineers Automotive Composites Conference and Exhibition (SPE ACCE) as he received the SPE Composites Division’s 2016 Composites Person of the Year award. The award publicly acknowledges a contributor who has provided significant aid to the SPE Composites Division, particularly during the prior year, as well as an individual who has made broader contributions to the composites industry as a whole. IACMI had a strong presence at the conference. In addition to Vaidya’s award honors, IACMI Chief Executive Officer Craig Blue delivered the keynote, presenting IACMI progress and opportunities, and IACMI Chief Commercialization Officer Dale Brosius led a panel session with IACMI partners from Dassault Systèmes, Plasan, Cincinnati Inc., and Lockheed Martin. A poster session led by Vaidya provided students with an opportunity to demonstrate current projects and work with potential industry impact. Rani Richardson, IACMI Board of Directors Member and Dassault Systèmes CATIA Business Experience Consultant, served as the 2016 SPE ACCE Chair. Numerous IACMI members attended, exhibited, and presented at the conference.

SPE ACCE is held annually to educate and update automotive design and production engineers, sales personnel, and management from transportation OEMs and Tier suppliers about the benefits and expanding importance of thermoset and thermoplastic composites in passenger vehicles, light trucks, and other ground transportation applications. Over 800 people attended the most recent conference.

For more information visit SPEAutomotive.com
Three Tickle College of Engineering Faculty Receive UTRF Backing

The UT Research Foundation announced its 2017 UTRF Backing, which includes $15 million in seed funding with faculty from three departments among the winners. Daniel Costinett, the Department of Electrical Engineering and Computer Science, Amming Hu, of the Department of Mechanical, Aerospace, and Nuclear Engineering, and Baoshan Huang, of the Department of Civil and Environmental Engineering, each won backing.

Costinett, an assistant professor, was recognized for his project dealing with wireless charging technology for electronics.

Hu, also an assistant professor, was honored for his work in developing novel materials through 3D printing and additive manufacturing techniques.

Huang, the Edwin G. Burdick Professor of Civil Engineering, was chosen for a project he is conducting with UT Institute of Agriculture Professor Keppens, who recently was named director of the Joint Institute for Advanced Materials at Ruhr-University Bochum in Bochum, Germany, and he has built an international reputation as a leader in alloy development theory, impacting IACMI–The Composites Institute.

Icove Addresses Motivation of Arsonists on Public Radio

David Icove, the Underwriters Laboratories Professor of Practice in the Department of Electrical Engineering and Computer Science, recently addressed the concept of what motivates arsonists in an interview with North Carolina Public Radio.

“Impact, revenge, crime concealment, extremism, or terrorism, are the six factors most likely to motivate arsonists, icove told WCQS. “In one case we looked at, the arsonist--after successfully evading detection—started writing letters and calling the fire chief and taunting him. Those are interesting types of cases that anecdotally provide much better insight into what’s happening.”

Icove, who is a national expert in fire-related forensics, has been a frequent guest on national and regional shows in the wake of the devastating wildfires in East Tennessee and Western Carolina. To view and listen to the broadcast, visit wcqs.org/post/what-motivates-wildfire-arsonist.

NE Professor Named Department’s First Pietro F. Pasqua Fellow

Maik Lang, an assistant professor in the Department of Nuclear Engineering, was recently named the first Pietro F. Pasqua Fellow. Lang has averaged nine journal articles per year for his first three years at UT, has outstanding teaching evaluations, and has had numerous scholarly collaborations with other faculty. The late Pasqua founded the department in 1957 and served as its head from 1957 to 1988. He is fondly remembered by faculty, staff, and alumni not only for his scholarly accomplishments and outstanding leadership, but also for his integrity, kindness, and dedication to teaching and learning. He was a genuine mentor to all that knew him, and he will forever live in the hearts and minds of those he touched. Members of Pasqua’s family still live in the area.

Governor’s Chair Receives 2016 Highly Cited Researchers Recognition

Terry Hazen, the Governor’s Chair in Environmental Biotechnology and a professor in the Department of Civil and Environmental Engineering, has been named a 2016 Highly Cited Researcher by Thomson Reuters. Hazen was named because his work has been identified as being among the most influential and significant in the field. Only a very few researchers earn this distinction—with 459 times his work is ranked among the top 1 percent most cited works for their subject field and year of publication, earning the mark of exceptional impact.

Parker is New Associate Dean for Faculty Affairs and Engagement

Lynee Parker, a professor in TCE’s Department of Electrical Engineering and Computer Science (EECS), who has been working with the National Science Foundation in Washington, DC, for the past two years, is the new associate dean for faculty affairs and engagement in the college.

“Dr. Parker brings with her a wealth of experience professionally and a great depth of respect from faculty in our college,” said Dean Wayne Davis. “We look forward to having her work with our faculty to improve and solidify the college’s relationships with the university and other constituencies.”

Parker joined the TCE faculty in 2002. She founded and served as director of the Distributed Intelligence Laboratory and the Center for Intelligent Systems and Machine Learning. She also served as associate department head of EECS.

While remaining a faculty member, Parker moved to Washington two years ago to serve as director of the NSF’s Division of Information and Intelligent Systems.

The first UT faculty member to take such a role with the NSF, she helped lead a White House–commissioned task force on artificial intelligence and the adaptation of smart machines, guiding the formation of the National Artificial Intelligence Research and Development Strategic Plan.

Alloy Expert Named Newest UT-ORNL Governor’s Chair

World-renowned metallurgist Easo George has been named the newest member of the joint UT-Oak Ridge National Laboratory Governor’s Chair program. George, who currently holds the title of Governor’s Chair for Advanced Alloy Theory and Development, becomes the 15th joint faculty member in the program, a cornerstone of the UT-ORNL partnership.

George most recently served as the director of the Center for Interface Dominated High Performance Materials at Ruhr-University Bochum, Germany, and he has built an international reputation as an authority on alloys and metals, and the behavior and testing of both.

Eight of the 16 Governor’s Chairs do research related to materials. That expertise aids to a growing strength in materials research for both UT and ORNL—a collaboration that has resulted in successful jointly operated centers devoted to research of materials along with the development of IACMI–The Composites Institute.

Jeremy Busby, director of ORNL’s Materials Science and Technology Division, noted that George’s appointment also will help advance ORNL’s leadership in alloy development theory, impacting innovations in everything from vehicles to nuclear reactors.

For more information on George’s appointment, visit www.ornl.gov.

EECS Professor Receives Award from Power America Manufacturing Institute

Fred Wang, professor and R.M. Condra Chair of Excellence in the Department of Electrical Engineering and Computer Science, and his research team, have recently received an award from the North Carolina-based Power America Manufacturing Institute. Wang’s proposal sought support to advance commercialization of WBG (Wide Bandgap) technology. The funding will begin on July 1, 2017. Wang’s group recently became a member of the institute.
EECS Professor Elected as Member of Russian Academy of Sciences

Jack Dongarra, director of the Innovative Computing Laboratory and a Distinguished Professor in the Department of Electrical Engineering and Computer Science, has added another item to his already impressive resume, as the Russian Academy of Sciences has elected him as a member. A number of the world’s leading minds from over the past 300 years are members, including dozens of Nobel Prize winners. In fact, another American joins Dongarra in this year’s class: former Secretary of State Henry Kissinger was elected to the academy’s devoted to global relations. Founded by Russian Emperor Peter I (Peter the Great) in 1724, the academy has long been one of the world’s leading scientific bodies, surviving Russia’s transition from imperial to soviet to democratic society.

The academy assists in educating students, directing research, and publicizing research breakthroughs. For Dongarra, already a world-renowned computing expert, it’s his latest accomplishment on a long resume.

He is also an electrical Engineering—one of five in the college—and a fellow of the Institute of Electrical and Electronics Engineers, the American Association for the Advancement of Science, the Association for Computing Machinery, and the Society for Industrial and Applied Mathematics. Additionally, Dongarra is known internationally for compiling and releasing the TOP500 list of the world’s fastest computers.

TCE Professors are Named 2016 CTR Faculty Fellows

Maik Lang, assistant professor of nuclear engineering, came to the UT because of the unique opportunities to collaborate. The large concentration of researchers in nuclear materials, which include Brian Wirth, Governor’s Chair for Computational Nuclear Engineering; Steve Zinkle, Governor’s Chair for Nuclear Materials; William Webster, Governor’s Chair for Radiations Effects on Materials; Yanwen Zhang, associate professor in materials science and engineering; and Alvin and Sally Beaman Professor in materials science and engineering, was a major reason Lang chose to join the faculty.

“IT is really great to have such a concentration in such close proximity as it provides frequent opportunities to discuss research,” Lang commented. “Before I came here, networking was typically limited to irregular meetings at conferences and workshops.”

In addition to collaborating with researchers in nuclear engineering and materials science and engineering, Lang has worked with professors from other departments as well. Currently, he is working with Joshua Sangiolo, assistant professor in chemical and biomolecular engineering, Haidong Zhou and Steven Johnson, assistant professors in physics, on a multidisciplinary research project.

“We received seed funding through the Office of Research to establish a research program which combines different disciplines in physics and materials research,” Lang said. “As assistant professors, we can feel the large momentum at UT to support young faculty members to be successful.”

Lang feels that working through problems together with his students is beneficial.

“I also ensure that students are engaged by asking many questions in class so that they are able to develop difficult concepts with me, rather than me alone explaining it to them,” Lang said.

He also likes to use his research to provide real world examples when he teaches.

“It’s important to relate complex topics to real life application as well as a means to an answer.” Lang continued.

“Certainly, it’s much easier to maintain running over the winter months here in Knoxville than to deal with snowfall or chilling temperatures, but the hills are definitely more challenging as compared to flat Michigan,” Lang commented.

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The Tickle College of Engineering Distinguished Lecture and Webinar Series featured five guest speakers in the fall of 2016 and six for spring 2017. Lecturers presented their topics in person in Room 622 of the Min H. Kao Electrical Engineering and Computer Science Building, with an Internet simulcast. Dean Wayne Davis expanded the series online as a way to have top academic and professional minds from around the world speak about some of the key topics and research of the day in a forum that all can access from anywhere.

Individuals unable to attend in person may view a live webcast and pose questions to the presenters at the end of their discussions, while an archived video of each presentation is made available online for later viewing.

The fall slate of lectures began on September 12, 2016, with Joan Brennecke speaking on “Designing Ionic liquids for CO₂ Capture.” She is the Keating-Crawford Professor in the Department of Chemical and Biomolecular Engineering at the University of Notre Dame.

Robert Davis delivered the second fall lecture. His presentation was titled “Tandem Reactions of Alcohols Derived from Renewable Biomass over Multifunctional Catalysts.” Davis is the Earnest Jackson Oglesby Professor in the Department of Chemical Engineering at the University of Virginia.

In the third lecture, Vigor Yang presented “Combustion Dynamics in Propulsion Systems.” Yang is the William R.T. Oakes Professor and Chair, Daniel Guggenheim School of Aerospace Engineering at the Georgia Institute of Technology.

John D. Boice, Jr., delivered the fourth fall lecture. His presentation was titled “Million Person Study of Low Dose Radiation Health Effects (and Relevance on Space Travel).” Boice is a member of the National Council on Radiation Protection and Measurement at Vanderbilt University.

The final lecture in the fall series featured David Sedlak presenting on “A Brighter Future for Urban Water Systems.” Sedlak is the Palto Maizozernoff Professor, Co-Director of the Berkeley Water Center, and Director of the Institute for Environmental Science and Engineering at the University of California, Berkeley.

The spring series of six speakers began on January 23, 2017, with John Sarrao, Associate Director for Theory, Simulation and Computation at Los Alamos National Laboratory. Sarrao’s topic was “Mesoscale Science: Science Frontier AND Technology Opportunity.”

Karen Thole, Department and Distinguished Professor of Mechanical Engineering, Mechanical and Nuclear Engineering Department at Pennsylvania State University, was the second speaker in the spring series. Thole’s topic was “Exploiting Additively Manufactured Microchannels for Cooling.”

The third lecture featured Zoya Popovic, Lockheed Martin Endowed Chair and Distinguished Professor of Electrical, Computer, and Energy Engineering at the University of Colorado, Boulder. Popovic’s topic was “The Wireless World: 50 Cell Phones Sold Per Second.”

Kathleen Stebe, Richer and Elizabeth Goodwin Professor of Chemical and Biomolecular Engineering at the University of Pennsylvania, presented her lecture entitled “Curvature Driven Assembly in Soft Matter.”

Gareth H. McKinley, School of Engineering Professor of Teaching Innovation, Department of Mechanical Engineering, Massachusetts Institute of Technology, presented “Fog, Feathers and Fluid Friction Reduction using Omniphobic Surfaces: Biomimetic Inspiration and Engineering Realization.”

Completing the spring series, Cynthia Phillips, Senior Scientist, Center for Computing Research, Sandia National Laboratories, presented “Sensor Placement For Municipal Water Networks.”

For more information, or to view archived past lectures, visit www.engr.utk.edu/distinguished-lecture-series.
Governors Chairs, Tickle College of Engineering
Helping Drive New Wave of Manufacturing

Uday Vaidya oversees his lab in The Fibers and Composites Manufacturing Facility and Engineering Annex.

There’s a new industrial revolution brewing, and UT is poised to be a leader in it.

Advanced manufacturing, which uses emerging technology and innovations to transform traditional production methods, accounts for an even-growing slice of the world’s economic pie.

“There are a number of laboratories and machines that we’ve been at the forefront of innovation,” said Taylor Eighmy, vice chancellor for research and engagement. “The Tickle College of Engineering and Oak Ridge National Laboratory have positioned us well.”

One impetus behind the effort is the UT-ORNL Governor’s Chair Program, with more than half of the 15 current professors in the program devoted to advanced manufacturing, materials, or design.

Suresh Babu, who joined the college as the Governor’s Chair for Advanced Manufacturing in 2013, is one key component in those advances.

Babu, who works out of the Departments of Mechanical, Aerospace and Biomedical Engineering and of Materials Science and Engineering at UT, is considered an international expert in the field.

He specializes in 3D printing and joining novel materials, for which he has been named a fellow of the American Welding Society, a three-time honoree of their research of the year award, their lifetime achievement award, and most recently, the UT-Society, a three-time honoree of their research of the year award, and innovations to transform traditional production methods.

Vaidya said such experiential learning was vital to the changing workforce because it allowed students to take research from a concept to a manufactured product.

Easo George is the most recent faculty member to join the cause, coming to UT as the Governor’s Chair for Advanced Alloy Theory and Development in December 2016.

A former head of the Alloy Behavior and Design Group at ORNL, George brings four decades of experience working with advanced alloys and metals, key to the improvement of advanced manufacturing.

George said the strong relationship between UT and ORNL and the chance to help both continue to be pioneers in the field was one of the things that excited him about taking the position.

But it isn’t just faculty who are eagerly joining the transformation of manufacturing. Being an early leader has also helped UT attract top talent in students, as well.

“We’ve seen tremendous growth in recent years, almost doubling in student population in just the last ten years,” said Wayne Davis, dean of the college. “The number of doctoral students we have is up almost 350 percent in that same span.

“Almost all of that growth has been due to our willingness to think ahead and address issues before they might be well known to the public, and undertaking advanced manufacturing in a serious manner has played a role in that.”

Several centers also have promoted UT’s role as a leader in advanced manufacturing techniques, including the UT-led IACMI—The Composites Institute.

Since its launch in January 2015, UT has formed critical partnerships in areas related to advanced manufacturing, particularly automotive manufacturing, lightweight materials, and fiber composites.

Many of those partnerships again highlight UT’s connections with ORNL, serving to benefit both institutions.

“We’ve taken on the challenge of expanding leadership and growing our research capabilities when it comes to advanced manufacturing technology,” said Craig Blue, director of ORNL’s Energy Efficiency and Renewable Energy Programs. “Partnering with UT has been critical to that mission, enabling successful public-private partnership engagement models for driving innovation and American competitiveness.”

With recent economic reports showing that growth in advanced manufacturing jobs outpaced the economy as a whole, UT’s position in front of the curve is likely to benefit the university for years to come and give its graduates a leg up in an ever-competitive job market.
Student News

UT Students Attend WEFTEC Conference

Two TCE students attended WEFTEC, the Water Environment Federation’s Annual Technical Exhibition and Conference, held in New Orleans September 24-28. Sharon Counts and Kelli Grissom, pictured from left to right, attended WEFTEC in New Orleans, Louisiana.

As part of the conference, Grissom and Counts were able to attend the WEF Student Design Competition. By winning the competition, they earned the opportunity to work with researchers and nuclear security professionals in some of the top labs in the country, fostering career development and specialized training.

Three nuclear engineering students were named as fellows of the National Nuclear Security Administration’s Graduate Fellowship Program. Dory Millar, and Adam Stratz were selected by the US Department of Energy’s National Nuclear Security Administration. The fellowship provides full-time funding for the students while they participate in NNSA offices around the country.

“The selections serve to highlight the great education in nuclear engineering available at UT,” said Postdive Professor Wes Hines, who is also head of the department. “The strengthening of our program has led to an increase in our reputation in our field, which allows us to attract some of the top-notch students around.

“Having three such students chosen for the NNSA fellowship program is confirmation of both our success and that of our students.”

The idea behind the grant is to identify and encourage students who are seeking to work in the nuclear energy sector after graduation. To facilitate these efforts, Millar and Stratz will be afforded the opportunity to work with researchers and nuclear security professionals in some of the top labs in the country, fostering career development and specialized training.

The Math Behind Vols Perfect Play

Pierce Anderson, a freshman in the college, ran the math behind Josh Dobbs’ improbable last game winning touchdown pass to Jauan Jennings.

“I decided to calculate the optimal velocity for the pass for a few reasons,” Anderson said. “Primarily, we were learning about projectile motion in EN 151 at the time of the game, so it was fresh on my mind. Due to a football pass example on this concept, I came up with the idea soon after the game. I decided to put all the data out in a problem as a sort of fun joke so I could show off my knowledge.

After he checked his math to make sure everything was correct, he posted his findings on Twitter where Josh Dobbs retweeted his work.

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After Dobbs responded to him on Twitter, local NBC affiliate WBBJ picked up his story and interviewed him. They also visited local American Society of Civil Engineers Historical Navigation Passage.

Grissom and Counts were chosen to attend the conference on the recommendation of UT faculty members who identified the students as leaders in their engineering community.

Nuclear Engineering Students Earn National Nuclear Security Administration Grants

Pierce Anderson

IESE Mid-Atlantic Regional Conference Held at UT

UT welcomed students from nine universities from around the region for the Institute of Industrial and System Engineers Mid-Atlantic Regional Conference. The event was held by UT’s IESE chapter, at the Holiday Inn World 1-Fair Park and the Felix.

“I am excited for all of the students from different universities that came to visit Knoxville and learned more about the field that they have chosen to study,” said Kylie White, a conference co-chair. “I hope that students left feeling like they learned something and for made new connections.

The speakers and plant tours featured a wide range of topics such as how to move the conference by co-chairs which included White and Sierra Fresch, seniors in industrial and systems engineering. The co-chairs strategically chose speakers and plant tours that represent a variety of industries research laboratories, ecommerce industries, manufacturing and production, healthcare systems, entrepreneurship, techniques and logistics engineering.

Fresch said, “With the diversity of the sessions, hope that we cater to each student’s personal interests at some point throughout the weekend.”

The conference included speakers like Wayne Davis, dean of the Tikkle College of Engineering; John Kobza, head of the Department of Industrial and Systems Engineering; Jordan Todling, director of transportation and logistics engineering; and Bob Huck, director of technical and professional conferences, for lean continuous improvement at East Tennessee Children’s Hospital, amongst many others.

Conference participants were also able to tour ORNL’s Manufacturing Demonstration Facility, CVS Pharmacy’s Distribution Center, and the Southern Insect Research Facility.

In addition, the conference featured a Win a Contest for students to showcase their problem-solving skills, a job fair, corporate panel, and a campus tour, as well as several sessions designed for industrial and system engineers to network with others in their field.

“IESE Mid-Atlantic Regional Conference is a weekend full of networking events, team building activities, a job fair catering specifically to industrial engineering undergraduate students, as well as, successful key-note speakers from the greater Knoxville area,” Larsett said.

This was the first time that UT hosted an IESE conference in six years, and brought in nearly 200 students from schools including Clemson University, North Carolina State University, and Virginia Tech University.

Three nuclear engineering students were named as fellows of the National Nuclear Security Administration’s Graduate Fellowship Program. Dory Millar, and Adam Stratz were selected by the US Department of Energy’s National Nuclear Security Administration. The fellowship provides full-time funding for the students while they participate in NNSA offices around the country.

“The selections serve to highlight the great education in nuclear engineering available at UT,” said Postdive Professor Wes Hines, who is also head of the department. “The strengthening of our program has led to an increase in our reputation in our field, which allows us to attract some of the top-notch students around.

“Athens in such students chosen for the NNSA fellowship program is confirmation of both our success and that of our students.”

The idea behind the grant is to identify and encourage students who are seeking to work in the nuclear energy sector after graduation. To facilitate these efforts, Millar and Stratz will be afforded the opportunity to work with researchers and nuclear security professionals in some of the top labs in the country, fostering career development and specialized training.

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UT hosts AICHE Southern Regional Conference

UT is hosting the 2017 American Institute of Chemical Engineers (AICHE) Southern Regional Conference from March 31 to April 1.

Eric Bodor, professor of chemical and biomolecular engineering and AICHE faculty advisor, believes this is a great opportunity to showcase the university to other member institutions.

“Hundreds of students and faculty from our peer institutions in the Southeast will be attending, so the stakes are high, but so is the visibility and exposure for our students when they put together a strong program,” Bodor said. “It’s a great opportunity for our best and most passionate advocates—our students—to show off our city, our university, and our department.”

Events at the conference will include a Chem-E-Car competition, regional paper and poster competitions, a Future’s Fair, Chem-E-Jeopardy, an Awards Luncheon, and an opportunity to network with other students, faculty, and industry professionals.

“We have the opportunity to showcase the department’s excellence in student engagement, graduate student research, and faculty involvement,” McBride said. “All parties are working together to enrich students in the southern region.”

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Nuclear Engineering Students Receive Joint Nuclear Regulatory Commission and Pasqua Scholarships

The Department of Nuclear Engineering awarded 13 outstanding freshman students with a scholarship as part of funding from the Nuclear Regulatory Commission (NRC). In addition to the NRC scholarship, the department was able to supplement the scholarship with a Pasqua Scholarship. “The department has very similar goals and values as the NRC and therefore was happy to leverage departmental funds to expand the impact of the NRC scholarship program,” said Wes Hines, Postelle Professor and head of the department. Hines sees this as an opportunity to provide financial assistance to ensure students can focus on academics first. “Some students are forced to take low valued part time jobs during college,” Hines said. “These jobs do very little to prepare the students for the nuclear workforce and take valuable time away from the student’s studies. We try to target students that have severe financial need and that are at higher risk for not being academically successful so that they can be a positive addition to the workforce.” Recipients of the NRC and Pasqua Scholarships include Maya Bilan, Alec Cacheris, David Clark, Valerie Gray, Mullin Green, Matthew Hipskins, Erica Irwin, Isaiah Linkous, Shane Pearson, Anna Robbins, Jakob Thaler, Alex Wadovick, and Kayln Wright. “The University of Tennessee leveraged their Nuclear Regulatory Commission scholarships last summer to bring in some of the brightest undergraduate students from across the country,” Hines said. “Over half of the diverse group of recipients were from outside Tennessee.”

Diversity Engineering Scholarship Program Offers Assistance to Incoming Engineering Students

In accordance with a new Tennessee law, Public Chapter 1066, UT reallocated approximately $436,000 in the university’s 2016-17 fiscal year budget for scholarships to be awarded through a new minority engineering scholarship program. Through the new one-year program, called the Diversity Engineering Scholarship Program, awards are allocated as four-year scholarships to ensure support for recipients throughout their undergraduate academic careers. Scholarship recipients were selected by the General Scholarship Committee in the Division of Enrollment Management and letters were sent in February to 40 students.

“We are excited about the recruitment of incoming freshman students with respect to race,” said Wes Hines, Postelle Professor and head of the department. “We try to target students that have severe financial need and that are at higher risk for not being academically successful so that they can be a positive addition to the workforce.”

The NRC scholarship fund allows for these students to pursue an education in science, engineering, or another field of study that the commission deems critical to its regulatory mission with a goal to add to the nuclear workforce. As part of developing the nuclear workforce, students will be required to work six months of nuclear-related employment for each year of academic support from the NRC scholarship.

“The employment may be with NRC, other federal agencies, state agencies, Department of Energy laboratories, nuclear-related industry, or academia in the recipients’ sponsored fields of study,” Hines commented. “We are excited about the recruitment of incoming freshman students with respect to race,” said Wes Hines, Postelle Professor and head of the department. “We try to target students that have severe financial need and that are at higher risk for not being academically successful so that they can be a positive addition to the workforce.”

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Award criteria

• Recipients must be classified as an in-state or out-of-state student.
• Recipients must maintain a 3.0 cumulative GPA each semester.
• Recipients must be continuously enrolled as a full-time student (12+ credit hours) each fall/spring semester in a degree program in the Tickle College of Engineering or in Biosystems Engineering in the College of Agricultural Sciences and Natural Resources.
• Recipients may be of any race or gender.
• For purposes of this scholarship program, the term “minority” will be defined consistently with Vol Vision 2020, the university’s strategic plan.

Number of awards and amounts

• Awards are $4,000 per year for four years.
• Awards may be combined with other UT and institutional scholarships.

Award Retention

• Recipients must maintain a 3.0 cumulative GPA each semester.
• Recipients must be continuously enrolled as a full-time student (12+ credit hours) each fall/spring semester in a degree program in the Tickle College of Engineering or Biosystems Engineering in the College of Agricultural Sciences and Natural Resources.

“…”
The Office of Engineering Diversity Programs initiated the first ever summer pre-college program in 1997 when they introduced Middle School Introduction to Engineering (MITE). James Pippin, former program director of the office, said the goal of the program was to introduce middle school students to engineering and recruit high school students to the college.

“The goal was to build a strong set of summer engineering experiences to increase the pipeline of underrepresented students majoring in engineering at the University of Tennessee,” commented Pippin.

Today, the office hosts four different programs which include Engineering Volunteers for Ninth Graders (eVOL9), Engineering Volunteers for Tenth Graders (eVOL10), High School Introduction to Engineering Systems for 11th Graders (HITES11), and High School Introduction to Engineering Systems for 12th Graders (HITES12). The goal is to spark an interest in engineering through hands-on activities and allow students to explore career opportunities. As part of the program, students participate in classes, dine in student dining halls, and live in student residence halls.

“My favorite part of the program definitely had to be living on campus,” said Andrew Prim, a freshman in chemical engineering from LaFollette, Tennessee. “For a week, I got a glimpse at what it was like to live on campus, which was an experience I had never had before.”

The programs also offer students the ability to familiarize themselves with the UT and the Tickle College of Engineering (TCE).

“When I was at HITES, we toured every engineering facility and many faculty members spoke to us about their respective departments,” said Irfan Ibrahim, a nuclear engineering major from Sevierville, Tennessee. “This was great in that we could all see what each engineering field was about and also see what types of careers people have in them.”

The pre-college programs also prepared students like Annette Robbins, a nuclear engineering major from Chattanooga, for the rigors of the college once they arrive.

“HITES” prepared me for the incoming workload from Engineering Fundamentals and how to standardize the homework in engineering format,” Robbins commented. “They helped me understand the engineer’s way of thinking—critical thinking.”

The programs allow students to familiarize themselves with the opportunities available to engineering students. Students like Benjamin Cruz, a biosystems engineering major, walk on campus with a better understanding of the programs available to them.

“I met faculty from the various engineering disciplines, worked firsthand with graduate students in the lab and experienced campus life at UT,” said Cruz. “I gained an understanding of the path that an engineering student takes during their time at UT and the various co-ops and internships that function through the university.”

To date, the programs have provided a summer engineering experience to over 1,000 middle and high school students. Amongst those students are plenty of success stories including students like Sydnie Ruff, Fernando Blevins, Dmarkus Simpson, Christine Garcia, and Ashley Armwine who started with MITE and continued forward through the programs into TCE.

One of those success stories is Jamie Anderson-Porter who went from pre-college to a PhD in nuclear engineering. She is now a radiation engineer at the Johns Hopkins University Applied Physics Laboratory.

“Jamie Anderson was the first female African-American student to graduate from the University of Tennessee with a PhD in nuclear engineering,” Pippin said. “The Knoxville native earned her BS in 2008; her MS in 2009; and accepted her doctorate at the spring 2012 graduate hooding ceremony.”

This year marks a change for the eVOL9 program. It will move to a four-day conference style setting.

“The goal is to expand this opportunity to 100 students. In addition, we will provide educational workshops for their parent/guardian and teachers,” said Travis Griffin, program director of the Office of Diversity Programs. “The important concerns associated with the program are improving the student experience to discover engineering, ACT preparation, and educating parents and teachers of the expectations of an engineering student.”

The new setting for the conference will also serve as a pilot program for potential future expansion.

“When the eVOL9 conference proves to be a successful model, we plan to make it mobile to provide the engineering experience in other major Tennessee cities (Chattanooga, Nashville, and Memphis),” said Griffin.

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Tony Alley is a Senior Advisor for the Afghan National Defense Security Force Staff.

Andrew Macemon is accepted into the US Naval Test Pilot School.

Alumni News

Engineering Alumni instrumental in Global ExxonMobil Project

TCE alumni and ExxonMobil employees gathered at the Hyundai Heavy Industries shipyard in Ulsan, South Korea, in July 2016 to commemorate the Hebron Project’s utilities/process module (UPM) load-out. The UPM houses power generation, oil separation, water treatment, and other facilities. It was shipped from South Korea to Newfoundland, Canada, by way of the Panama Canal. The UPM arrived in Fall 2016 for the installation and integration of additional modules. The topsides will be set on top of a stand-alone concrete gravity based structure, or GBS, near ExxonMobil’s Hibernia project. The GBS will support the integrated topsides deck that includes a living quarters and facilities to perform drilling and production.

John Hunter named a Vice President at Barge, Waggoner, Sumner and Cannon, Inc.

John Hunter (BS/CEE ’97, MS/CEE ’02) joined Barge, Waggoner, Sumner and Cannon, Inc., (BWSC) as a client service leader in April 2016, and was named a vice president at the firm in November 2016. Hunter began his professional career with the Tennessee Department of Transportation, where he held a number of positions in the design, right-of-way, and project management divisions. He was employed at CDM Smith and served as Chief Traffic Engineer for the City of Knoxville before joining BWSC. Hunter received both his undergraduate and graduate civil engineering degrees from the UT as well as a Master of Business Administration degree from the Haslam College of Business. He is a licensed engineer in the State of Tennessee.

Tony Alley is a Vice President at Barge, Waggoner, Sumner and Cannon, Inc.

John Hunter (BS/ESM ’92) participates as part of the NATO-led Resolute Support Mission, in Kabul, Afghanistan. He is a senior advisor responsible for advising and mentoring the Afghan National Defense Security Force (ANDSF) staff at the national and lower levels. He covers the full range of cradle-to-grave procurement actions, including requirements generation, contract process and procedures, policy generation, contract administration, contract management, contract inspection, and auditing functions.

Facilities Update: Tickle Building Receives Excellence in Design Award

Four construction projects at UT, including two on the engineering campus, have been honored by American School and University magazine as examples of the best in design among colleges and universities. The magazine’s November issue recognized the John D. Tickle Engineering Building with an Outstanding Post-Secondary Project Design award for projecting “a welcoming image and unique departmental identity,” with an atrium and outdoor plaza that serve “a multifunctional role for gatherings and events.” UT’s Engineering Quad and Estabrook Road/Second Creek Restoration project was given an Outstanding Landscape Architecture Design award. The quad “emphasizes the collaboration of the college’s disciplines while providing access to the Estabrook Road streetscape improvements, including new seating areas, sidewalks, and improved Wi-Fi access.”

“The Tickle Engineering Building and the renovations to the engineering quad and restoration of the Second Creek area are the two most recent physical signs of the growth our college has undergone in recent years,” said Dean Wayne Davis. “Our enrollment has grown by more than a thousand students in the last decade, and we are committed to providing them with the best facilities and campus experience that they can have. These two projects are signs of that commitment.”

For more information on campus construction projects, visit conezone.utk.edu.

Andrew Macemon accepted into the US Naval Test Pilot School

Andrew Macemon (BS/ME ’06) was honored with acceptance into the US Naval Test Pilot School in 2016. He previously worked as a flight test engineer with Redstone Test Center in Huntsville, Alabama. He began classes at the pilot school in January in Pax River, Maryland.
Hashemian and his wife Nazzy offer their congratulations to John Tickle.
Longtime UT civil engineering professor David W. Goodpasture passed away Wednesday, September 14, at age 77. After attending Knoxville's Fulton High School, Goodpasture graduated No. 1 amongst civil engineering students in the class of 1960. He worked a short time with Boeing before earning a master's degree in the University of Illinois. Goodpasture had brief stints at UT and at the Massachusetts Institute of Technology before returning to Illinois to earn his doctorate.

Goodpasture then returned to UT to teach in what is now the Department of Civil and Environmental Engineering, spending 38 years until his retirement in 2004. Since that time, he served as a professor emeritus, bringing his total commitment to UT to more than fifty years, frequently collaborating with colleague and friend Edwin Burdette.

“David and I, and later Dr. Hal Deatherage, worked for many years on numerous research projects sponsored by the Tennessee Department of Transportation,” said Burdette, who recently retired as the Fred N. Peebles Professor in the department and has a professorship named in his honor.

“He was the indispensable man on those projects, the only one with the expertise to use the computerized data taking equipment necessary to perform the research.”

Dexter C. Jamison

Dexter C. Jamison, who taught in the civil engineering department for 30 years, passed away November 2, 2016, at age 89. He had served briefly in the US Navy, and after ROTC in college, he served four years in the US Army. During his time at UT, he primarily taught surveying courses and courses related to highway design.

He will be remembered by a large number of former students as the faculty member who taught with Boeing before earning a masters degree from the Massachusetts Institute of Technology.

Goodpasture was the son of the late John and Eula Goodpasture, the Massachusetts Institute of Technology graduate who has a professorship named in his honor. His particular expertise came in the testing and design of highway bridges, including being a co-investigator on the first such project at UT.

At one time or another during his tenure as a full-time professor, Goodpasture taught every required course related to structures in addition to both undergraduate and graduate courses dealing with the design and behavior of steel structures.

The students always considered Dr. Goodpasture to be a good teacher—someone who knew his stuff and who wanted you to know it, too,” said Chris Cox, head of the CEE department. “As a colleague, Dave was friendly and good-natured. The phrase ‘gentleman and a scholar’ could easily have been coined to describe Dave Goodpasture. Burdette noted that hundreds of Goodpasture’s former students still remember his graduate course in behavior of steel structures, both for his expertise and his thoroughness.

“David never really ‘bought in’ to grade inflation,” said Burdette. “He left a positive mark on civil engineering at UT, and he will continue to be remembered with pleasure and gratitude by many former students.”

Goodpasture was the son of the late John and Eula Goodpasture and was preceded in death by his wife, Marion, and sister, Jacquetta Weaver. He is survived by his children, grandchildren, nieces, and nephews.

David W. Goodpasture

David W. Goodpasture

Douglas worked as a development engineer in Oak Ridge at the Y-12 Plant until his retirement in 2008. He continued with his second career as an adjunct professor in MABE before retiring from that position in 2015. Douglas was a loyal follower of the Oak Ridge Wildcats and could be found most Friday nights at either Blankenship Field or the Wildcats basketball auditorium. He spent countless weekends supporting his seven grandchildren in various sporting events.

Spivey Stevens Douglass

Spivey Stevens Douglass, 78, died on February 10, 2017, after a short battle with cancer. He retired in 2015 as an adjunct professor in the Department of Mechanical, Aerospace, and Biomedical Engineering (MABE) and in the Department of Industrial and Systems Engineering (ISE, though at the time it was known as the Department of Industrial and Information Engineering). He was born in 1939 in Grenada, Mississippi, and after attending college at Mississippi State University, moved to Oak Ridge, Tennessee, where he lived and worked for more than fifty years. He was known as a loving and devoted husband to his wife, Shelby Douglass, and an incredible father.
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.

Calendar

**Spring 2017**
- Classes Begin: Jan 11
- MLK Holiday: Jan 16
- Spring Break: Mar 13-17
- Classes End: Apr 28
- Study Day: May 1
- Exams: May 2-5, 8-9
- Graduate Hooding: May 11
- Commencement: May 13
- Official Graduation Date: May 13

**Fall 2017**
- Labor day: Sept 4
- Fall Break: Oct 5-6
- Thanksgiving Holiday: Nov 23-24
- Classes End: Dec 5
- Study Day: Dec 6
- Exams: Dec 7-8
- Graduate Hooding: Dec 14
- Commencement: Dec 15
- Official Graduation Date: Dec 16

**Contact Information**

**Senior Administration**
- Wayne Davis, Dean of Engineering
- Wayne T. Davis Endowed Chair in Engineering
- Bill Dunne, Associate Dean for Research & Technology
- Lynne Parker, Associate Dean for Faculty Affairs & Engagement
- Masood Parang, Associate Dean for Academic & Student Affairs

**Departments**
- Chemical & Biomolecular: 974-2421
- Civil & Environmental: 974-2503
- Electrical & Computer Science: 974-3461
- Industrial & Systems: 974-3333
- Materials Science: 974-5336
- Mechanical, Aerospace & Biomedical: 974-2093
- Nuclear: 974-2525

**Administration & Programs**
- Communications: 974-0533
- Dean’s Office: 974-5321
- Development: 974-2779
- Engineering Advising Services: 974-4008
- Engineering Diversity Programs: 974-1931
- Engineering Fundamentals: 974-9810
- 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: 974-5803
- CURENT: 974-9720
- Innovative Computing Laboratory: 974-8295

Mike Cupples, EdD, (BS/EE ’71) and family frequently return to the UT Engineering Alumni BBQ. Here they are with Dean Wayne Davis at the November 5, 2016, event.

The homecoming celebration was held in conjunction with the 90th anniversary of engineering co-op and the naming of the Tickle College of Engineering. Alumni, faculty, staff, students, and guests enjoyed food from Dead End BBQ on the courtyard between Ferris and Perkins halls. The Vols won the homecoming game 55-0 over Tennessee Tech.

This year’s homecoming date is Saturday, November 4, 2017, in conjunction with the UT vs. Southern Miss football game.