Aerospace Engineering Student Joshua Dobbs Leads the University of Tennessee Volunteer Football Team to an Exciting New Era
Dean's Message

Welcome to our Fall 2015 Tennessee Engineer! There are many changes in the "landscape" that are occurring in and around the College of Engineering. As I sit at my desk drafting my message, the noise of trucks, saws, hammers, bobcats, and construction are all about me. They are coming from the general "quad" area outside of Perkins/Ferris/Dougherty Halls as well as from within Perkins Hall. Hopefully, by the time you read this, it will have quieted down. For the first time in many years, the "quad" area—where we celebrate Engineers Day, Homecoming BBQs, Co-op activities, etc., will be completely re-landscaped with new sidewalks, landscaping, tables/seats. This includes Estabrook Drive from the Tickle Building down to Cumberland Avenue. These are occurring simultaneously with significant changes to Cumberland Avenue to make it more pedestrian friendly. While these changes are only cosmetic, they create a more inviting outdoor environment for students, faculty, staff, and our many alumni and friends who visit our part of campus! Substantial renovations have occurred in Dougherty Hall with new research/teaching laboratories on many floors and the new Eastman Unit Operations Laboratory, which opened to students for the first time this fall. A part of Perkins Hall has also been renovated and our freshman Honors and Jerry E. Stoneking programs have been relocated to Perkins Hall effective this semester with a record number of freshmen (approximately 780). It will be wall to wall people in Perkins for the next several years—but well worth the inconvenience. This is in preparation for the new engineering complex that will be built at the current location of Pasqua and Estabrook Halls. The new complex will house our freshman programs and the Department of Nuclear Engineering. The student and faculty landscape is also changing. We are striving to increase the diversity of both our students and faculty. In the summer of 2015, as a result of support from our faculty and corporations (Boeing, Eastman, and Volkswagen) and the efforts of our Office of Diversity, we were able to provide six different weeks of summer pre-college programs (METES7, eVOLS9.0, and HITES13.2) to rising seventh through twelfth graders. A record number of two hundred and nine students participated.

This fall's freshman class has a record 22% female students, and we now have twenty-three female faculty. While we, like many other colleges of engineering in the country, have a long way to go to become an increasingly diverse college.

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This fall's freshman class has a record 22% female students, and we now have twenty-three female faculty. While we, like many other colleges of engineering in the country, have a long way to go to provide a truly diverse student body and faculty, we are making measurable progress in these areas, and we are implementing programs at both the faculty and student levels that will facilitate our becoming an increasingly diverse college.

This issue of the Tennessee Engineer also contains a listing of our alumni and friends who have donated funds to the college through various scholarships, professorships, endowments, and enrichment funds this past year. We value and express our sincere appreciation to each of you and we encourage you to be proud of your alma mater, to be involved in helping to make our college a better college and to be invested in our future.

Wayne T. Davis
Wayne T. Davis Endowed Chair in Engineering
Aerospace Engineering Student Joshua Dobbs Leads UT Vols

UT quarterback Robert Joshua “Josh” Dobbs created a sensation among Tennesseans and college football fans alike. Dobbs, a junior engineering student, is the UT Vols starting quarterback for the fall 2015 season. Dobbs led UT Vols to the SEC East Division title, earning minor, Honors courses, and football the Chancellor’s Honors Program. And athletically, he wanted to be in the honors program and was impressed with the academic rigor and leadership. Dobbs is the son of Robert and Stephanie Dobbs, and attended high school at Alpharetta High School in Georgia. He praises his parents and cites them as “a perfect balance of integrity and character.”

Dobbs has been named “Player of the Year” for both his region and county. In February of 2013, Dobbs was awarded the prestigious Franklin D. Watkins Award, presented annually to the nation’s top African-American athletes who exemplify excellence in academic achievement and community service. In addition to graduating with thirteen years of perfect attendance, Dobbs was the Alpharetta High School Class of 2013 recipient of the Atlanta Journal Constitution (AJC) Cup. As state of Georgia’s highest honor for a member of the senior class, the AJC Cup is presented annually to the senior selected by the high school administrators and teachers for his/her dedication to academics, arts, athletics, community service, and leadership.

Prior to signing with UT, Dobbs had previously committed to Arizona State University, but ultimately decided to stay in the SEC because of its aerospace engineering program, but he changed his mind after he contacted me on an open spot for him at UT.

“Juggling the demands of the classroom and the football field is a major and business administration minor. Honors courses, and football responsibilities can be challenging,” Dobbs said. “It takes a lot of proactive planning and efficient time management to excel in all these areas. I know I have a great relationship with my engineering student Joshua Dobbs is the UT Vols starting quarterback for the fall 2015 season. Dobbs created a sensation among Tennesseans and college football fans alike. Dobbs, a junior engineering student, is the UT Vols starting quarterback for the fall 2015 season. Dobbs led UT Vols to the SEC East Division title, earning minor, Honors courses, and football the Chancellor’s Honors Program. And athletically, he wanted to be in the honors program and was impressed with the academic rigor and leadership. Dobbs is the son of Robert and Stephanie Dobbs, and attended high school at Alpharetta High School in Georgia. He praises his parents and cites them as “a perfect balance of integrity and character.”

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Dr. Wayne Davis, dean of the College of Engineering, recently received a phone call from the Chinese Academy of Engineering extending an invitation to him to join the editorial board of its publication Engineering Practice. The magazine is managed by the United Nations Educational, Scientific and Cultural Organization, scholars and national engineering societies from across the globe, and several science-oriented publishers. Engineering is a premier science-based journal that promotes meeting humanity’s challenges in the coming years.

The format is one in which a variety of articles, research, and surveys help facilitate discussion on topics ranging from energy to infrastructure. In his role, Davis will be on the team reviews analyzing submissions for relevancy and accuracy; something he takes seriously.

“The Chinese Academy of Engineering is one of the premier engineering groups in the world,” said Davis. “This publication can serve as a way to bring together some of the leading minds in science and engineering research and get us focused on solving some of the big issues of the day. This is a tremendous honor.”

Davis came to the attention of the academy when he spoke at the 2014 International Conference on Engineering Science and Technology in Beijing. Conference topics included China’s challenge to improve air and water quality, areas of Davis’s research.

As part of that visit, he heard an address from China’s president Xi Jinping, met with engineers from around the world, and delivered an address entitled “Control of Sulfur Emissions from Fossil Fuels—Successes and Challenges.”

Davis had additional personal contact with the academy when students from UT took part in the Global Grand Challenges Summit in September in Beijing.

The UT College of Engineering is pleased to announce that Dr. Uday Vaidya has been appointed as the Governor’s Chair in Advanced Composites Manufacturing, effective July 1, 2016. Vaidya is the Fourteenth UT-Oak Ridge National Laboratory (ORNL) Governor’s Chair and the seventh to focus on a specific aspect of advanced manufacturing, underscoring the vital importance of this area both on the university and the national lab.

Vaidya will also serve as a professor in College of Engineering’s Department of Mechanical, Aerospace, and Biomedical Engineering (MABE). He earned his doctorate at Auburn University in 1993, his masters at Shivaji University in Kolhapur, India, in 1987, and his bachelors at Kamataka University in Dharwad, India, in 1985, all in mechanical engineering.

In his role as Governor’s Chair in Advanced Composites Manufacturing, Vaidya protects classes from engineering design and manufacturing processes. Vaidya will focus on the design, modeling, and manufacturing of advanced materials such as carbon fiber, utilizing research and capabilities of UT and Oak Ridge National Laboratory (ORNL).

COE Names New Governor’s Chair

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Dr. William Durns

Associate Dean for Research and Technology Dr. William Durns was recently appointed to the American Society for Engineering Education (ASEE) Engineering Research Council (ERC). The appointment was reconfirmed at the ASEE annual meeting in Seattle, Washington on June 15, 2015. Durns will serve in the role for three years.

Dr. Jeffery Radack (left), a professor in the Department of Mechanical and Biomedical Engineering, received the Award for Excellence in Advancing Award from Chancellor Jimmy G. Cheek.

Dr. Jeffrey Radack (left), a professor in the Department of Mechanical and Biomedical Engineering, received the Award for Excellence in Advancing Award from Chancellor Jimmy G. Cheek.
MABE Department Establishes Richard Rosenberg Endowed Professorship

The Department of Mechanical, Aerospace, and Biomedical Engineering recently received a generous donation to establish the Richard Rosenberg Endowed Professorship.

The donation honored Rosenberg—a 1954 graduate of the department— during a ceremony in which he and three others were inducted into the department's Hall of Fame.

According to his degree at UT, Rosenberg had been a successful career in engineering, working at Oak Ridge, Westinghouse, and General Atomics.

Rosenberg traveled the globe during his career, including as chair professor at Oak Ridge National Laboratory and as director of Engineering of the Year in 1988.

He served as president of the American Society of Mechanical Engineers (ASME) and received the Dedicated Service Award and the Centennial Medal from ASME in 1988.

In 2003, Rosenberg was named an honorary member of ASME for his contributions to the engineering profession— a designation that only three engineers who have not received an ASME doctoral degree since 1954 have been so honored.

According to current ASME President and Head Dr. Matthew M. Mench, “Richard Rosenberg’s contributions have been outstanding and far-reaching, not only within ASME, but throughout the engineering profession and across the United States. I am honored to have the opportunity to recognize his contributions and to announce the establishment of this professorship. It is fitting that this professorship will be named in honor of Richard Rosenberg.”

The department plans to fill the professorship position next year.
GOVERNOR’S CHAIR HAZEN TO LEAD INSTITUTE FOR A SECURE AND SUSTAINABLE ENVIRONMENT

A leading center at UT will soon have a new director in Dr. Terry Hazen, a rising faculty member. Dr. Hazen is taking the helm of the College of Engineering’s Institute for a Secure and Sustainable Environment (ISSE), Hazen worked with the Engineering Dean to become the head of the Department of Civil and Environmental Engineering, and was a member of the Broaden Horizons Committee. Hazen brings an impressive set of experiences that include working with the university to grow in response to environmental issues facing the state, nation, and the globe.

Hazen was selected out of the merger of three previous organizations—the Energy, Environment and Resources Center (EERC) and Advanced Materials and Composites (AMAC) that span nanometer to millimeter scale, extending the life of materials for a variety of materials. In response to the increasing demand for energy infrastructure, Hazen received numerous awards for his work in industry and government agencies including the University of Tennessee’s College of Engineering Distinguished Service Award.

ESS Professor Receives 2015 IEEE RAS Distinguished Service Award

Dr. Lynne Parker, Department of Electrical Engineering and Computer Science, received the 2015 IEEE Robotics and Automation Society (IEEE RAS) Distinguished Service Award. This award is given annually to recognize individuals who have performed outstanding service for the benefit and advancement of the IEEE RAS. Dr. Parker was cited for her work as Editor-in-Chief of the RAS Conference Editorial Board, and her contributions to RAS conference. For more information, see http://recweb.ross_feedback/awards/recognition/society-awards/60-awards/recognition-society-awards/37-ieee-ras-distinguished-service-award.

Dr. Veerle Keppens was named as head of the Department of Materials Science and Engineering (MSE) on June 30.

Keppens will take over the helm of the department, which has a faculty of 35 and 300 undergraduate and graduate students. In making the announcement, College of Engineering Dean Dr. Veerle Keppens lauded Huang’s exemplary scholarly teaching and research record.

University of Tennessee is Awarded NSF Industry/University Cooperative Research Center Grant

The University of Tennessee, Knoxville, was recently notified that the university’s efforts to join the Center for Integrative Materials Joining Sciences for Energy Applications (CIM/JSEA), established five years ago at Ohio State University, has been funded. The C/JSEA’s mission is to bring together researchers from both institutions from a variety of disciplines to work on advancing knowledge and reducing the time and cost of deploying advanced materials and technology.

University of Tennessee (UT) Professor Burdette honored for outstanding service

Professor Charley Hodges, a 1974 graduate of the college, went on to work for an industry or company that is interested in exploring the impact of the research that is unique to the UT site. The role of materials science—and along with it the profession of materials science—has evolved dramatically over the last four years and to Veerle for her leadership over the last four years. The relationship between UT and ORNL was essential in providing the complementary research, especially on ORNL’s high-flux isotope reactor (HFIR), neutron scattering, and polymers. The relationship between UT and ORNL is essential in providing the complementary research, especially on the University of Tennessee Materials Joining Sciences for Energy Applications (CIM/JSEA) site at UT put forth five research projects for the proposal including large-scale additive manufacturing of dissimilar materials to be headed by Dr. Suresh Babu (MABE) and Dayakar Penumadu (CEE) with a core team of Drs. Zhili Feng (ORNL), Yanfei Gao (MSE), and Stephanie TerMaath (MABE) who projects additional projects include materials science and engineering (MSE), and the Department of Mechanical, Aerospace, and Biomolecular Engineering (MABE) with expertise in the areas of expanding research to include polymers, ceramics, and hybrid materials in addition to the ongoing metals portfolio, access to expertise and infrastructure on neutron characterization for studying phase transformations, kinetics, and residual stress, leveraging the state-of-the-art integrated neutron scattering headed by Drs. Hahn Choo and Charmaine Perera.

Dr. Suresh Babu (MABE), Dayakar Penumadu (CEE), and Stephanie TerMaath (MABE) will focus on probabilistic modeling and simulation and the development of advanced materials using additive manufacturing technologies within the Oak Ridge National Laboratory (ORNL) Manufacturing Demonstration Facility (MDF) and training graduate students with skills in this emerging area, and integrating computational materials engineering (ICME) tools developed by ORNL researchers to guide and complement industrial joining needs. The call for the above technical efforts was answered by establishing a team of researchers from the Department of Civil and Environmental Engineering (CEE), the Department of Materials Science and Engineering (MSE), and the Department of Mechanical, Aerospace, and Biomolecular Engineering (MABE) with expertise in the areas of expanding research to include polymers, ceramics, and hybrid materials in addition to the ongoing metals portfolio, access to expertise and infrastructure on neutron characterization for studying phase transformations, kinetics, and residual stress, leveraging the state-of-the-art integrated neutron scattering headed by Drs. Hahn Choo and Charmaine Perera. The CIM/JSEA site at UT put forth five research projects for the proposal including large-scale additive manufacturing of dissimilar materials to be headed by Dr. Suresh Babu (MABE) and Dayakar Penumadu (CEE) with a core team of Drs. Zhili Feng (ORNL), Yanfei Gao (MSE), and Stephanie TerMaath (MABE) who projects additional projects include materials science and engineering (MSE), and the Department of Mechanical, Aerospace, and Biomolecular Engineering (MABE) with expertise in the areas of expanding research to include polymers, ceramics, and hybrid materials in addition to the ongoing metals portfolio, access to expertise and infrastructure on neutron characterization for studying phase transformations, kinetics, and residual stress, leveraging the state-of-the-art integrated neutron scattering headed by Drs. Hahn Choo and Charmaine Perera.
Dr. Mingzhou Jin came to the UT College of Engineering’s Department of Industrial and Systems Engineering (ISE) in 2012, and has distinguished himself in multiple roles in those three short years. He is a professor and associate head of ISE; the director of the Reliability and Maintainability Engineering (RME) program; and he collaborates with a wide cross-section of campus and area groups.

“Over three years, I have become affiliated with the Oak Ridge National Lab (ORNL) and with several academic and research units on campus,” said Jin. These include the Center for Transportation Research, the Reliability and Maintainability Center, the Department of Business Analytics, the Department of Political Science, the Department of Electrical Engineering, and many others.

“Working with colleagues all over the campus and at the lab, I have successfully grown my funded research program, including five full-time Ph.D. students and several part-time graduate students,” said Jin.

The program is the Logistics, Transportation, and Supply Chain Lab, which won the first place in 2014 Supply Chain Case Competition hosted by the Institute of Industrial Engineers (IIE). “The lab’s current focus includes intelligent transportation—railway options, freight risk analysis, connected vehicles, transportation data analysis—and advanced manufacturing and economic and life-cycle analysis, quality control, process optimization, and supply chain management,” said Jin.

The opportunity to work with others in his field was one of the attractions for Jin in coming to UT, along with positive aspects of the city and region. “I chose UT because of the collaboration potential with the Oak Ridge National Lab and the livability of the city of Knoxville,” he said. “It is a good place to raise kids. We have a very good Chinese community, in Knoxville, and at UT.”

Jin’s work at UT has also benefited from the IIE’s 2013 move into the John D. Tickle Engineering Building. “Moving to Tickle provided space for us,” he said. “It also helped us get interest from around the college to visit our department.”

Jin began his studies at Zhejiang University. Jin completed his PhD in industrial and systems engineering in 2001 at Lehigh University in Bethlehem, Pennsylvania. He joined the industrial and systems engineering faculty at Mississippi State University (MSU) from 2002 to 2011. In 2008, he won the MSU Faculty Research Award for the Bagley College of Engineering. Research and teaching overlap for Jin, with several of his students working on the interaction between RME and logistics management, such as the integration of inventory management and maintenance planning, advance manufacturing for spare part management, and reliability improvement. He teaches courses such as Supply Chain Engineering, Optimization in Industrial Engineering, Senior Design, Graduate Seminars, Stochastic Processes, Statistics, Operations Research, and he collaborates with a wide cross-section of campus and area groups.

“An effective teacher must build a strong connection with his students,” said Jin. “The connection is based on the teacher’s true love of teaching and a deep caring about students. I use many methods to make students feel that the material is connected to their current or future job assignments, to their career development, to contemporary issues, and even to their daily lives. I have developed and used examples based on real-world problems from my research projects, current students’ internships and co-ops, or former students’ job duties.”

His approach earned Jin the 2015 College of Engineering Teaching Fellow Award; the 2014 IIE Award for Excellence in the Teaching of Logistics and Supply Chain; the 2014 first place in the IIE Logistics and Supply Chain Case Study Competition (Advisor); a 2014 Distinguished Professor Award, from the IIE Student Chapter at UT (noted by all IIE students).

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Hundreds Take Part in Inaugural WomEngineers Day

Career advice, diversity, and opportunities for engineers and scientists were key topics Saturday, April 11, 2015, at the Knoxville Convention Center as more than 350 high school and college students turned out for the first WomEngineers Day hosted by the College of Engineering (COE).

Highlighting speakers such as Lockheed Martin executive vice president Lorraine Martin and Pratt and Whitney Military Engines president Bennett Croswell, the conference gave students a chance to hear from and talk to seasoned professionals in engineering and related fields.

“The support for WomEngineers Day within our college and the excitement for it among our attendees truly inspired us,” said Jessica Bokes, a UT senior who helped bring about the event. “Engineering as a whole will soon be in the hands of our generation, and it’s up to us to responsibly shape its future.”

One of the big themes of the day was inclusiveness, with male and female students alike asking panelists and speakers about their experiences in the workplace and how to deal with problems when they arise. Martin, who serves as project manager for Lockheed Martin’s highly visible F-35 program, related a particular story of bias from her early days as an Air Force officer. One particular supervisor saw her preparing a report and told her she was learning skills that would serve her well as a PTA member later in life. She said she realized it wasn’t said with ill will, but that her supervisor honestly viewed her main worth as a future mom, not as the second lieutenant that she was. The episode taught her a particular lesson about bias, one she as a future mom, not as the second lieutenant that she was.

“Bias says more about them than it does you,” said Martin. “When you look at someone, don’t see their outward packaging, see what they bring to the table. What’s on the outside should matter.”

The conference also offered up sessions on topics that weren’t specific to engineering, such as money planning, starting a business, and balancing work and family. Students had the chance to break into smaller groups with the experts and ask them any number of questions, with the most frequent area of focus seeming to be how those experts got started in their field and how they assumed leadership roles.

“You don’t have to walk around with a shirt that says ‘I’m the leader,’” said Sabrina Hampton, a UT graduate who now is a liaison for Consolidated Nuclear Security LLC. “People know it by your actions.”

The day ended with discussions on ethics, an introduction to the COE—attendees got a chance to diversify in the workplace that featured quarterly workforce and aerospace engineering major Joshua Dobbs.

“We hope the conversations begun that day are continued among students and speakers alike,” said Boles. “That’s the only way for us to truly begin making an impact on our respective fields.”

All told, nineteen UT students helped facilitate the event, with the support of the COE’s Board of Advisors.

“Your Professional Connections through UT Engineering Career Networking in 2 Parts”

More than 350 attendees gathered for the inaugural WomEngineers Day conference at the Knoxville Convention Center.

www.utaaconnect.com/prof

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- Now ranking higher education based on 
  alumni with accounts. Add the University of 
  Tennessee, Knoxville on your profile today!

Join the University of Tennessee College of Engineering LinkedIn Group to further network with alumni: https://goo.gl/Jkiw8V
Benjamin Brock Is Goldwater Scholar

Benjamin Brock, a Haslam Scholar and computer science major from Jefferson City, Tennessee, was named as a 2015 Goldwater Scholar at UT. The Barry Goldwater Scholarship and Excellence in Education Program awards scholarships to students studying mathematics, science, and engineering. Each scholarship provides a $7,500 award for undergraduate study and research. Brock has done research at Oak Ridge National Laboratory, the University of Edinburgh, and here at UT.

ASCE Team Places at Conference

The American Society of Civil Engineers (ASCE) student group at UT placed in the Top 4 at the Southeast Regional Conference on March 19-21, 2015. The conference consisted of challenging, exciting civil engineering competitions, with students offering their concrete canoe and steel bridge entries. UT students worked very hard all year long and continue to see success and improve in the largest conference in the nation.

Benjamin Brock

Civil engineering Associate Professor John Ma, far left, stands with the College of Engineering ASCE team, celebrating strong showings at the 2015 ASCE Southeast Regional Conference in March.

Save the Date College of Engineering Homecoming 2015

Saturday, November 14, 2015
3 hours prior to kickoff
Catered by Dead End BBQ
Located in the newly renovated Engineering Courtyard (Between Ferris and Perkins Hall)

Register today at www.volsconnect.com
$12.00/adults - $8.00/children under 10 years of age
For more information, contact Juliette McClure at (865) 974-2779 or email jmclu10@utk.edu.

Get into the Game!

With new COE logo apparel
www.shgstores.com/utkce/
A close-up look at a laser-based sedimentation measuring device in the lab.

Achilleas Tsakiris demonstrates the large flume to visitors during the Hydraulics and Sedimentation Laboratory open house.

Research Update
Department of Civil and Environmental Engineering’s Hydraulics and Sedimentation Laboratory Officially Opens in

Water-related issues are quickly shaping up to be a major concern around the world, and a new lab at UT hopes to tackle that concern. The Hydraulics and Sedimentation Laboratory officially opened on Tuesday, May 12, 2015, with the implications of its research already becoming apparent.

“Thanos Papanicolaou came to UT with a passion for civil engineering and its impact, and our impact on the environment,” said College of Engineering Dean Wayne Davis. “When you look around at the water crisis in California, or some of the other water-related issues closer to home like recent water woes in Atlanta, it’s clear how important this research will be moving forward. Those areas of need in our country are his areas of expertise, and we’re extremely happy to have him and his group here.”

Based in the Department of Civil and Environmental Engineering (CEE), the Papanicolaou Research Group maintains one of the most advanced laboratories of this kind in the country and is one of only a small number of such labs in the Southeast. Papanicolaou said his research group currently has twenty-five ongoing projects.

“It’s a fast-paced field, and we’ve had phenomenal growth from when we started building this lab little more than a year ago until now,” said Papanicolaou. “We’re located in a strategic place in the Southeast to help study water issues that affect the entire region. Along with energy and food, water issues will play a huge part in society’s future moving forward, and it really feeds into both of those subjects as well.”

Papanicolaou’s group gave attendees at the event a look at some of the notable equipment and discussed partnerships with other universities and government organizations, including:

The US Department of Agriculture (USDA): Studying where soil is washed into streams is coming from and invest in better farming practices.

University of Virginia: Studying riverbeds and their effect on ecosystem health.

Oak Ridge National Laboratory and the National Science Foundation: Studying the topology around boulders in rivers and how they help diffuse water flow and improve fish habitats.

Arizona, New Mexico and Midwestern states: Studying rainfall patterns, improving conservation and waterway health.

Transportation departments: Studying scour issues where water flows around bridges and developing warning systems to alert transportation officials to bridge wear and decay in attempt to avoid repeats of bridge collapses like the one in Minneapolis-St. Paul.

National Science Foundation-Critical Zone Observatories: Studying the effects of human activity on the first few layers of the earth and predicting ways of developing a sustainable future.

Highlighted by a pair of tractor-trailer-sized water flumes, the lab also features a rain station, sedimentary tools and gauges, and about seventy-five other pieces of lab equipment.

The group has received numerous grants from NASA, the Tennessee Valley Authority, and the US Departments of Energy, Transportation, Agriculture, and Defense, many of which had representatives on hand for the lab’s opening.

Papanicolaou stressed the importance of such studies and research, noting that the projects weren’t based on the hypothetical but on current real-world needs.

For Dr. Chris Cox, the new head of the CEE department, the lab’s opening served as a reminder of the latest development in a recent surge of progress for the department.

“This gives us unique capabilities that we’ve never been able to offer before,” said Cox. “In the last few years we’ve added two Governors’ Chairs (co-located UT Oak Ridge National Laboratory program), four senior faculty members and several other faculty members, and we’ve moved our department to the state-of-the-art John D. Tickle Engineering Building. This just adds momentum to our upward trajectory.”

For more information on the lab, visit http://tpapanicolaou.engr.utk.edu.
Lab-grown crystal scintillators, excited here by fluorescent light, can take various shapes.

Lab-grown crystal scintillators, excited here by fluorescent light, can take various shapes.

The Scintillation Materials Research Center (SMRC) at the University of Tennessee is an internationally recognized facility for the discovery, synthesis, and characterization of new scintillation materials for use in a variety of radiation detectors. Such detectors are critical for homeland security inspection and monitoring systems, neutron and high-energy particle physics experiments, and remote exploration for new energy resources.

Scintillators absorb energetic radiation—such as gamma rays, X-rays, or neutrons—and convert that energy into short bursts of visible photons. These photons are then converted into electrical pulses by photo-detectors.

“The SMRC carries out research that addresses important issues in our society, including healthcare, security, and energy,” said Dr. Chuck Melcher, director of the SMRC.

“In general, I think the SMRC has become quite well-known in our field as a leading research center for scintillator discovery, crystal growth, and materials characterization,” said Merry Koschan, SMRC research associate. The center was founded in 2005 as an industry-university partnership with a grant from Siemens Medical Solutions. Support from Siemens has been continuous since then, totaling $5 million so far. Related research focuses on developing the next generation of radiation detection materials for medical imaging. Melcher is the principal investigator (PI) for this project, and Koschan has worked with him on it since the center was founded. Dr. Mariya Zhuravleva, assistant professor in the Department of Materials Science and Engineering (MSE), also works on this project.

Siemens uses scintillators in three types of medical imaging: positron emission tomography (PET); single-photon emission computed tomography (SPECT); and X-ray computed tomography (X-ray CT). The company’s PET unit is centered in Knoxville.

“Not surprisingly we are most closely aligned with this unit,” said Melcher, who invented the scintillator that Siemens currently uses commercially in PET. SMRC research also benefits Siemens’’sPECT unit, headquartered near Chicago, and the X-ray CT unit, centered in Germany.

Two grants from the Department of Homeland Security (DHS) also fund research at the center. Zhuravleva is PI for one five-year, $2 million project that focuses on increasing scintillator crystal growth to sizes needed in practical applications.

“There tends to be a gap between the millimeter-size laboratory-produced samples that researchers usually study and the inch-long and larger crystals that are needed in real applications,” said Melcher. “It is notable that this program is the only one of its kind in the DHS research portfolio.

“This project has been highly lauded by the DHS, and referred to by them as a model project,” said Koschan.

Melcher is PI for the other DHS project, a five-year program with $1.75 million in funding total, that focuses on increasing scintillator crystal growth to sizes needed in practical applications.

“When developing new materials, it is essential to understand what my research interests truly are and how I can use it for my research has cultivated my ability to operate independently towards results. The diverse experiences available at the SMRC is what attracted me to begin with and that exposure has helped me understand what my research interests truly are and how they could be turned into a career after graduation.”

The SMRC has had fifteen graduate students since 2005, with eight students earning MS degrees, five of which continued on toward PhDs. Six students working with the center earned PhDs, with more at varying stages of their doctorate work. Twenty-four undergraduate students have worked in SMRC labs at various points in time, either on a part-time basis during the academic year or during the summer, plus two high-school students.

SMRC principal researchers maintain involvement with related professional societies. Melcher served on the organizing committee for the SCINT 2015 conference in June, and will also be editor of the conference proceedings. Koschan was elevated to the grade of IEEE Senior member in 2015. Zhuravleva was elected secretary of the executive committee of the American Association for Crystal Growth (AACG). Koschan, Zhuravleva, and Stand serve on the executive committee of the local Southeast section of AACC, which Koschan also chaired.

The SMRC has enjoyed a number of collaborations with various College of Engineering faculty members due to the interdisciplinary nature of scintillator research. In particular, there are funded projects with Dr. Bin Hu and Dr. Philip Rack in the Department of Materials Science and Engineering; Dr. Larry Miller and Dr. Jason Hayward in the Department of Nuclear Engineering (NE); and Dr. Dayalak Perumal in the Department of Civil and Environmental Engineering (CEE).

“Looking forward, we have recently joined with Dr. Dayalak and Dr. Vaara Kekkosen in MSE on a $23 million NSF proposal to establish a crystal growth user facility in the Joint Institute for Advanced Materials (JIAM),” said Melcher.

The SMRC has collaborators at several national labs, including Oak Ridge National Laboratory, Brookhaven National Laboratory, Lawrence Livermore National Laboratory, Lawrence Berkeley National Laboratory, and Y-12. Another major use of scintillators is in high-energy particle physics experiments, such as at the Large Hadron Collider at the CERN laboratory in Switzerland that recently discovered the long-theorized Higgs boson, as well as ongoing searches for dark matter. The SMRC has collaborated on occasion with scientists at CERN to look at the properties of new scintillators relevant to applications in this area.

“We also have had funded projects with some companies in addition to Siemens, namely NuScale, Radiation Monitoring Devices, Inc., and Materials Modifications, Inc.,” said Melcher. “We have also just joined with the University of California, Berkeley, on a $25 million consortium proposal to DOE/NNSA on nuclear nonproliferation research and education.”

Dr. Dayalak Perumal, assistant professor in the Department of Civil and Environmental Engineering, discussed research with Dr. Mariya Zhuravleva, right, in the Scintillation Materials Research Center.

Graduate student Adam Lindsey works with crystals in a vacuum hood in a lab of the Scintillation Materials Research Center.

Graduate student Luis Stand discusses research with Dr. Mariya Zhuravleva, right, in the Scintillation Materials Research Center.

Graduate student Chris Hobbs checks on the progress of materials in a transparent furnace in the Scintillation Materials Research Center.

Graduate student Adam Lindsey prepares testing equipment in the Scintillation Materials Research Center.

Graduate student Jesse Johnson prepares testing equipment in the Scintillation Materials Research Center.

Graduate student Camera Foster examines a sample crystal in the Scintillation Materials Research Center.

From left: research associate Merry Koschan and graduate student Camera Foster examine a sample crystal in the Scintillation Materials Research Center.
The College of Engineering’s Distinguished Lecture Series brings nationally renowned engineers, engineering educators, and engineering innovators to speak at the college. Faculty, staff, students, and the engineering community from around the world can take advantage of these lectures in person, via live web-cast, or through archived videos.

“Providing the access to our lecture series is our gift to our alumni and other colleagues across the world,” said Dr. Wayne T. Davis, dean and Wayne T. Davis Endowed Dean’s Chair in the College of Engineering (COE). “The lectures encompass the spectrum of engineering disciplines, are eligible for professional development hours (i.e., continuing education credits), and are free to all.”

“This provides opportunity for us to feature and host prominent experts in the engineering field on our campus,” said Davis. “It also provides simultaneous access to our lecture series at no cost to other colleges of engineering, to licensed professional engineers and Engineers-in-Training, and others that might seek continuing education or professional development hours, including our alumni who now reside in all fifty states and some seventy-plus countries around the world.”

The unique component of a live webcast makes it possible for individuals to experience the lecture without having to travel to the campus.

“We have had a Dean’s Distinguished Lecture Series for a number of years, it was always an on-campus ‘attend in person’ type of event,” said Davis. “We are enthusiastic about the opportunity to broaden the college’s Distinguished Lecture Series from being just a campus event to one that is a live webcast with access from wherever a person might reside.”

Viewers of the webcast also have an opportunity to submit questions and/or comments to the speaker via email. During each lecture, the e-mails are monitored and select e-mail questions and/or comments are presented to the speaker. Questions and/or comments can be sent to colecture@utk.edu.

The on-campus location for the lectures is Room 622 of the Min H. Kao Electrical Engineering and Computer Science Building. Lectures are held at 4:00 p.m. on the scheduled days. Most lectures are archived within about forty-eight hours, with permission from the speaker.

For more information on the Distinguished Lecture Series, visit www.engr.utk.edu/distinguished_lecture.

The fall 2015 series of speakers includes Dr. Katherine Kuchenbecker, University of Pennsylvania; Dr. James McLurkin, Rice University; and Dr. William H. Sanders, University of Illinois Urbana-Champaign.

In upcoming lectures, Dr. Francisco Valencia-Cuevas will speak on January 27, 2016. Cuevas is a professor of biomedical engineering and biokinesiology and physical therapy at the University of Southern California. Lee Johnson, the deputy manager in the Advanced Concepts Office at NASA’s Marshall Space Flight Center, will speak in April 2016 as part of the Distinguished Lecture Series.

Dr. Katherine Kuchenbecker, an associate professor in mechanical engineering and applied mechanics and computer and information science at University of Pennsylvania, delivered the first talk for fall 2015 in the Distinguished Lecture Series.

As the Jerry and Kay Henry Professor of Engineering in the University of Tennessee, Knoxville College of Engineering, I have the support to advance my research in creating new materials for post-silicon electronics utilizing a field known as “spintronics.” One of the main advantages of spintronic devices is that very little power is needed to run them. Minimizing the power requirements of electronic devices is becoming increasingly important as more and more items are being connected to the Internet. This professorship has also allowed me to offer unique research collaborative projects to both graduate and undergraduate students in the Department of Materials Science and Engineering. I am very grateful for the generosity that Jerry and Kay Henry have shown in establishing this professorship, and appreciate the opportunities it provides for both faculty and students in our department.

Dr. David Mandrus
Jerry and Kay Henry Professor of Engineering
Department of Materials Science and Engineering
New Landscaping Projects Enhance Appearance, Function of the Engineering Campus

Students, faculty, staff, and visitors to the UT campus will have an opportunity to enjoy two new significant landscaping projects on the engineering campus that are slated to be completed this fall.

The Perkins-Ferris Courtyard

Beginning in May, the courtyard area between Perkins and Ferris Halls and the steps to the Science and Engineering Research Facility were closed to pedestrian traffic as a construction team began demolition on the area. In addition, Middle Way Drive was also closed to motorized vehicle traffic during the project.

The newly landscaped area will feature increased seating, including round tables with chairs and benches, as well as additional bike loop storage and even a bike repair area. A new staircase with seating will lead down from the courtyard area between Dougherty and Ferris to Estabrook Road, making pedestrian access easier to parking behind the two buildings. The width of access in the area will be enhanced and improved during the Fall Semester, allowing students, faculty, and staff the capability to work on laptops and tablets outside.

On Middle Way Drive pavers will be added in a decorative pattern to enhance the appearance of the road. The entrance area for SERF will include new ADA-approved paths and the stairs will be landscaped to better blend in with the new design.

Dr. William Dunne, the college’s associate dean for research and technology, who is representing the college for the project, added that every effort has been made to preserve the mature trees that are already located in the area, and new vegetation that is indigenous to the East Tennessee climate will also be added. Pavers and shade-friendly groundcovers will be used to fill in the areas under the trees.

Estabrook Road Improvements

A second landscaping and upgrade project is going on along the eastern boundary of campus on Estabrook Road, behind the Dougherty Engineering Building and the Min H. Kao Electrical Engineering and Computer Science Building. The old chain link fence is being torn down, and structural engineers from Barge Waggoner Sumner & Cannon, Inc. (BWSC) along with workers from UT Facilities Services are replacing deteriorating above ground infrastructure (such as the sidewalk, fencing, overhead wires, etc.) and are adding streetscape elements including trees, lighting, seating and new paving to improve the appearance and accessibility for this end of campus.

Due to extreme damage from weather, moisture, and vehicles over the years, the infrastructure underlying the area was in very bad shape, so the project has been limited to the area between Cumberland Avenue and the stairs leading to the parking area next to Second Creek. Dunne said that this phase of the project will be completed in time for the football season, with work along the remainder of Estabrook Road up to the John D. Tickle Building continuing after the football season and academic classes have completed.

The current plan is to completely restructure the eastern side of Estabrook Road by early 2016. The university and BWSC are also working with the City of Knoxville to clear out and landscape the bank of Second Creek that is located next to the university’s parking lot in order for both areas to provide a consistently attractive and convenient pedestrian area for UT students, faculty, and staff.
The 2015 Intercollegiate Summer Bridge Program (ISB) was held on June 12-July 1, 2015. This second year of the summer bridge program provided the twenty-six participants with opportunities to prepare for the collegiate environment as they develop academic, study, and personal skills while also engaging in career exploration. This residential summer experience offered introductory courses in pre-calculus and chemistry, as well as college life.

The College of Engineering collaborated with the College of Agriculture and Natural Resources and the College of Arts and Sciences to create and host the ISB program, which began in 2014. The focus is to provide a transitional program of study from high school to the university for underrepresented students majoring in science, technology, engineering, and mathematics (STEM). The program is based on an established model initiated by the Tennessee Louis Stokes Alliance for Minority Participation (TLSAMP). ISB offers students an overview of courses required in their freshman curriculum in the STEM areas.

This preliminary exposure to the academic environment of higher education developed academic success skills in the students. The success of the program is measured by testing the students before and afterward, and by the transformation in the students’ perception and attitude over the three weeks.

Students who participated in the 2014 ISB improved their chemistry skills by 19% and their pre-calculus skills by 12%. Participating students in 2015 improved chemistry skills by 17%, and pre-calculus skills by 47%.

Several field trips incorporated into the program gave students insight into different aspects of STEM careers, along with leadership and teambuilding experiences. The Mountain Challenge Ropes Course at Maryville College assisted students in building connections and friendships at the beginning of the program. This trip allowed them to begin acclimating to the new environment while quickly making friends and helping each other succeed.

The ISB group then visited several areas of Oak Ridge National Laboratory (ORNL), including the Oak Ridge Leadership Computing Facility (OLCF), the Spallation Neutron Source (SNS), and the Climate Change Science Institute (CCSI). Dr. Ben Preston gave a presentation on global warming, and the many investigations that the CCSI takes part in concerning this environmental issue. He also told them about summer research opportunities that are available at the institute.

Another trip took students to Sweetwater Valley Farm, located between Philadelphia and Loudon, Tennessee. The farm is known for its agricultural vitality and progress. This particular field trip sparked the interest of the College of Agricultural Sciences and Natural Resources (CASNR) students within the program. Students received insight into how cheese is produced along with learning about varieties of cheese flavors and textures. Students also saw where the cows are milked, and the professional equipment used.

During their last field trip, students toured the DENSO Manufacturing facility in Maryville, Tennessee, and got a glimpse of the engineering employed at the auto-parts manufacturing company. A panel discussion at the end of the tour gave students an overview of the engineering careers at the facility, and also imparted valuable professional development tips for success in their college and professional career. Students walked away with the knowledge of successful professionals in their major, some professional development, and a possible contact for their future endeavors.

For information, visit tlsamp.utk.edu/incoming.html!
**Journey to the Top 25.** If you’ve read any UT materials or heard Dean Davis or Chancellor Cheek in the past few years you know we’re on a mission to become a top 25 public research university. It’s more than a theme, it’s a drive to excellence that motivates our thinking and inspires our actions. **Top 25:** Not just a goal, but a vision that impacts how students and parents think about us, how companies recruit engineering graduates, and how faculty members choose to come here for careers.

Join the Journey is an invitation to our alumni and friends to consider your role in UT’s future. It’s your future, too. You joined the journey the day you set foot on the University of Tennessee. So tell us your journey stories. Send us updates on your careers for the alumni segment of this magazine. I suspect you have journey stories with friends, too, because every journey is made a lot more fun with the friends we’ve made and kept over the years. Do you gather regularly somewhere? Do you come each year to a football or basketball game? Do your families get together? Or do you just have a great photo with those friends? Share them with us and we’ll print a photo and quote in one of our engineering publications!

**Be Proud! Be Involved! Be Invested! Join the Journey.** It’s one exciting ride.

To get your photo and quote or a sentence about the friendships you have with other UT engineering graduates, contact Juliette McClure at jmcclu10@utfi.org.

“Being part of the Minority Engineering Scholarship program is similar to being in a fraternity. The friendships that I made at Tennessee have followed me throughout both my professional and personal career. Wherever I go throughout the country I know I have friends that share a common experience with me that began at the University of Tennessee.”

Greg Richard

“I’ve always great to reconnect with college friends who you shared so much with while back on campus. We shared so many special times and memories while at UTK including countless hours studying together to achieve the same goal of graduating.”

Joe Fareed

I chose the University of Tennessee for its excellent education at a price that would not demand years of my life to pay back. The Tummins Scholarship has helped me accomplish graduating in four years with no student loan debt—enabling me to look at future plans without restriction, and I am very grateful for the support it has provided.

This scholarship also offsets costs in a way that has allowed me time to focus on my degree, research projects, and to serve as a College of Engineering Student Ambassador. In that position, I have been able to tell the UT engineering story to talented high school students from Tennessee and beyond. I want young students to understand that the University of Tennessee is more than athletics—it is a great place to start your academic career!

Gregory Tate ’16
Tummins Scholarship

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Jim Flood, Vice President, Arctic Project Development for ExxonMobil

“...it was great having my brothers on campus and we took the girls to many sports and other outdoor activities around Knoxville and the Smoky Mountains,” Flood commented.

Flood also talked to a student about his engineering education: “...you need to understand the engineering principles vs. memorizing formulas.” He added: “...philosophy that ‘we don’t have problems, we only have choices’ which has helped me work with project teams around the world to develop sound engineering solutions.”

Flood also worked in production operation assignments, including Operation Supervision positions in Midland, Texas, and LaBarge, Wyoming. When the Exxon and Mobil merger occurred in 2000, Flood moved to the ExxonMobil Development Company where he has helped manage major upstream projects in Chad and Angola. Flood also worked on Sakhalin Island in Russia for four years during the Phase V charter-drilling project. “I moved into the Arctic Vice President job in 2010 and I cover three regions: Russia, Newfoundland, and Alaska and currently have six active projects with a total gross capital cost of over $35 billion.”

Flood sees continued success in the future for ExxonMobil, “...since the energy industry is a growing industry as our population increases and the other oil and gas companies continuously seek new supplies of energy to meet the ever increasing world demands for clean energy sources.”

The price of oil is low at this time but we have seen many Cycles during my thirty-five years in the industry and we have to take a long-term approach and continue to work a robust and diversified portfolio to ensure we have the capital and tools so when you realize price growth you are ready to move forward,” Flood commented. “...there is still plenty of growth potential for all of the major oil and gas companies, especially in the Arctic Regions where we believe a very high percentage of the undiscovered oil and gas reserves are likely to be found.”

Flood enjoys working on major projects and plans to continue his work with ExxonMobil for several more years before considering retirement.

“I have one project in Alaska in the early development phases where we are looking to monetize gas from the North Slope which could be one of the largest major infrastructure projects in North America with costs over $60 billion. The project started and ensure it is on solid foundation before going into retirement.”

Flood resides in Magnolia, Texas, with his wife Kate. He has three daughters, Shelbi, Darbi, and Maya and enjoys all of the activities that go along with parenthood: helping the girls with their homework, coaching soccer, and watching UT sports and NFL football with his family.

“I’m a huge UT fan so you would guess I’m super excited about the program Coach Jones is building and look forward to this season,” Flood said. “Go Vols!”

J. Ross Greene

J. Ross Greene (BS/CE ’74, MS/CE ’78) earlier this year published the historical novel Fortress and a Legacy. The book is a fact-based story set during World War II, inspired by the discovery of a very old letter written to each other by Greene’s uncle and aunt, Therma Perrin, her mother and grandmother; and Albert Johnson, her father and grandfather.

Greene researched the history surrounding his family’s personal story, meeting descendants of celebrities, presidents, and veterans, some of whom with his uncle. Greene taught in the civil engineering department while working on his master’s degree in 1983–1984.

He now lives in Atlanta, Georgia, and is the founder and CEO of Greene Consulting. For information on his novel, visit aforsessandalegacy.com.

Dr. Dewey H. Hodges

Dr. Dewey H. Hodges (BS/BE ’69) has been chosen to receive the 2015 Spirit of St. Louis Medal from the American Institute of Aeronautics and Astronautics (AIAA). Hodges is currently an aerospace engineering professor at the Georgia Institute of Technology (Georgia Tech). A lifetime fellow of AIAA, AIAA, AHS and AAM, Hodges will formally receive the medal and a $1,000 honorarium during this year’s AIAA, AHS and AAM Mechanical Engineering Congress and Exposition to be held in Texas this November.

The Spirit of St. Louis Medal was established in 1929 by Philip D. Ball, ASME members, and citizens of St. Louis. It was given to an individual or industrial service for advancement of aeronautics and astronautics.

In announcing Hodges as its 2015 medal recipient, AIAA praised him for “developing the theory and methodology for modeling the dynamics and aeroballistics of composite helicopter rotor blades, highly flexible slender aircraft wings and wind turbine blades; and its implementation in the VABS software used extensively in research and industry.”

Hodges joined Georgia Tech’s aerospace engineering faculty in 1966, following a brief stint as a research scientist at the US Army Aeronautical Dynamics Directorate at Ames. He was also a guest lecturer at his alma mater, Stanford University, during that time.

As the 2015 recipient of St. Louis Medal recipient Hodges, he carried a company with past winners such as Daniel Guggenheim, Charles Draper, Neil Armstrong, and Robert Loewy. Last year, Hodges was chosen to receive the 2015 Spirit of St. Louis Medal from the American Institute of Aeronautics and Astronautics (AIAA) for work on his novel, visit aforsessandalegacy.com.

Dr. Rupadhya and Nirmala Upadhyaya's Scholarship

Dr. Rupadhya and Nirmala Upadhyaya were married in 1978, with both holding PhDs in chemical engineering from the University of Delaware. They had two children, Dr. Nirmala Upadhyaya Upadhyaya and Dr. P. Rupadhya, who both hold PhDs in chemical engineering from the University of Delaware. They are both professors at the University of Delaware, with Nirmala serving as the chair of the chemical and biomolecular engineering department and Rupadhya serving as the director of the Center for Advanced Biofuels and Bioproducts.

The Upadhyayas established a scholarship in honor of their parents, Dr. Belle R. Upadhyaya and Dr. Nirmala Upadhyaya. This scholarship is available to graduate students in chemical engineering at the University of Delaware, with preference given to students who are US citizens or permanent residents of Delaware. The scholarship is awarded to students pursuing degrees in chemical engineering, with a focus on areas related to biofuels, bioproducts, and environmental sustainability.

The Upadhyayas hope that this scholarship will encourage and help promote nuclear engineers to complete their degrees in good standing. As the nuclear engineering graduate program continues, it is vital to have new students pursuing degrees in this field.

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The College of Engineering celebrates the opening of the New Eastman Unit Operations Laboratory. Eastman in Kingsport, Tennessee, has long been a strategic partner for UT’s College of Engineering.

The new Eastman Unit Operations Laboratory was officially dedicated on Thursday, April 9, 2015, at 10:30 a.m. in a ceremony that took place in a tent just outside the Nathan W. Dougherty Engineering Building. The event celebrated the latest example of the Eastman-College of Engineering partnership, bringing business and education together to enable students to be successful in the workforce and to allow faculty to conduct valuable innovative research.

Alvin and Sally Beamson Professor and Head Dr. Bamin Khomami welcomed guests. After remarks by COE and Eastman officials and dignitaries, guests enjoyed conducted on tours of the laboratory, followed by a luncheon in the Neyland Stadium East Skybox on the seventh floor. “Eastman’s support of our college is certainly important to our growth and success,” said Dr. Wayne Davis, dean of the College of Engineering. “The opening of this lab is a key moment for us, one that would not have been possible without this partnership.” The lab offers state-of-the-art facilities for teaching and research. Unit operations labs are often used to help chemical engineering students take theoretical knowledge from the classroom and put it to use in monitored conditions.

In particular, students can go through the processes of converting raw materials into finished products, something that helps them to gain experience for employment after college. “Having a lab such as this will allow us to expose our students to the practices and experience that are so critical to success after college,” said Khomami, professor head of the Department of Chemical and Biomolecular Engineering.

For a Fortune 300 company like Eastman, being approximately one hundred miles away from UT has provided them with one of their most critical resources: people. “While funding and mentoring provided by Eastman help the college, having such a highly skilled group of graduates in their background is one of the significant ways that the COE returns the favor.”

Events & Awards

Alvin and Sally Beamson Professor and Head of the Department of Chemical and Biomolecular Engineering Dr. Bamin Khomami welcomes guests and dignitaries at the dedication of the Eastman Unit Operations Laboratory in the Dougherty Engineering Building.

“Having the best engineering college possible benefits the region, not just Eastman,” said Etta Clark. Eastman’s vice president for global public affairs and policy. “Our relationship is about collaboration and teamwork, and developing a solid foundation for students to succeed in the workforce. When those students secure local jobs, it benefits everyone.”

In addition to the lab itself, Eastman also has sponsored a commons area in Dougherty, where students study or relax, three professors of practice positions, and the HITES—High School introduction to Engineering Systems—camp. The company’s contributions to UT total over $6 million.
IACMI, ACMA, UT and ORNL Meet with COE Alumnus and Donor John D. Tickle

One of the critical elements for the success of the Institute for Advanced Composites Manufacturing Innovation, or IACMI, announced by President Barack Obama in January, is collaborating with some of the leading institutes, research centers, and companies around the world.

Led by UT and Oak Ridge National Laboratory (ORNL), the group has built a number of relationships and recently welcomed one such partner, the American Composites Manufacturers Association (ACMA) to campus.

ACMA leadership got to learn firsthand about advanced manufacturing taking place at UT and ORNL. They also got to visit with one of their former leaders.

John D. Tickle (BS/ME '65)—a longtime supporter of UT and a member of the College of Engineering's emeritus board of advisors—is past chairman of ACMA, and was on hand to meet IACMI and ACMA members.

ACMA recently honored Tickle for his fifty years of service to advanced composites manufacturing, in addition to previously having awarded him the 2012 Lifetime Achievement Award and the 2009 Chairman Award.

“John Tickle has had an incredible influence on ACMA,” said Jay Merrell, current chair of the ACMA board and Vice President of Norplex-Micarta. “Many of his efforts and ideas are still in place in our organization today. He has also been an important driver in the development of the composites industry throughout his fifty years.”

Strongwell, the company Tickle bought in 1972 when it was known as the Morrison Molded Fiber Glass Company, is a resource member of the IACMI consortium. According to Cliff Beri, ORNL expert in carbon fiber and composites, Strongwell's pultrusion expertise and equipment are part of the support they are providing IACMI.

“I will never lose the thrill of seeing an idea or innovation come to life,” said Tickle. “It was very special to recognize John Tickle and Strongwell Corporation this way,” said Dr. Taylor Eighmy, UT's vice chancellor for research and engagement. “John is a national leader in the composites industry and has served ACMA. It was great to meet with ACMA, introduce them further to IACMI, and have a chance to talk to everyone about the strengths of carbon fiber. It has been a great partner in pultrusion. They will be a key partner for us in IACMI.”

The visit also showed the importance of composites research and development at UT and ORNL since UT joined with Battelle Memorial Institute to jointly manage ORNL in 2000, the two institutions have forged ahead for all of us to recognize John’s contributions and celebrate Strongwell’s leadership in pultrusion. They will be a key partner for us in IACMI.

“IACMI is committed to helping lead the composites industry forward under the partnership. It has been a great contribution to not only produce a more efficient vehicle but market it as well. The DOE, through Argonne National Laboratory, helps with logistics and testing, and while Siemens donated software that the team uses. In addition to altering the environmental impact of the car itself, the team is committed to providing outreach about the program, visiting the Science Café at Ijams Nature Center, STEM training at Holston Middle School, and several other events at UT, as well as the recent FIRST Robotics competition.”

The team also took part in Sevierville’s Earth Day celebrations at the Sevierville City Park Pavilion and UT’s Earth Day celebration hosted by the Office of Sustainability at the Humanities Amphitheater. The team also met with students from Austin-East High School and the L&N STEM Academy.

For more information about the IACMI project, visit http://iarmi.org.

For more information about Knoxville’s EarthFest, visit http://www.knox-earhfest.org.

The EcoCAR 3 Team is On Exhibit at Earth Week Celebration

The United Department of Mechanical, Aerospace, and Biomedical Engineering’s EcoCARs and the automotive team that helped to design it was featured, along with Knoxville Mayor Madeline Rogero and Knox County Mayor Tim Burchett, at the Knoxville EarthFest celebration at the World’s Fair Park on Saturday, April 18, 2015. The official 2015 Earth Day was Wednesday, April 22.

The team answered questions related to the program, which is part of a twenty-six-year effort known as the Advance Vehicle Technology Competition (AVTC), under the US Department of Energy (DOE).

“We talked to people, addressed any interests they have in the Camaro, in the program, or in the environment,” said UT team media representative Elizabeth Floyd. “We had giveaways and opportunities for people—including the majors—to get their pictures taken with the car.”

EcoCAR 3, the current level of the competition, is trying to leverage the “muscle power” of the iconic Chevrolet Camaro while at the same time reducing its impact on the environment via hybrid power capabilities.

UT donated a Camaro to each of the sixteen university teams to experiment with for the competition.

The AVTC has had a series of competitions over the years with the goal of increasing efficiency in vehicles, moving toward hybrid power systems, and exploring fuel options. Each team is made up of students from engineering, businesses and communication programs, with the idea being to not only produce a more efficient vehicle but market it as well.

The DOE, through Argonne National Laboratory, helps with logistics and testing, and while Siemens donated software that the team uses.

The GOV has taken the environmental impact of the car itself, the team is committed to providing outreach about the program, visiting the Science Café at Ijams Nature Center, STEM training at Holston Middle School, and several other events at UT, as well as the recent FIRST Robotics competition.

For more information about the EcoCAR3 program, visit http://ecocar.org.

For more information about Knoxville’s EarthFest, visit http://www.knox-earhfest.org.

COE Board Member and Alumnus is Honored by ISE Department

Terry K. Begley (BS/CE/IE ’69), the retired Vice President, Global Supply Chain and Chief Procurement Officer for Eastman Chemical Company, and a member of the UT National Board of Directors and the College of Engineering’s Board of Advisors, was honored by the Department of Industrial and Systems Engineering (ISE) for a generous gift to the ISE department’s Excellence Endowment with the unveiling of the Terry K. Begley Faculty Office. The office is located in Room 522 on the fifth floor of the John D. Tickle Engineering Building and is currently occupied by ISE professor Dr. Xueping Li. Dr. John Kobza, professor and head of ISE, presented the plaque and expressed his appreciation on behalf of the department.

Terry Begley (right) and his wife, Carline (left), with a plaque commemorating the naming of the Terry K. Begley Faculty Office in the John D. Tickle Engineering Building.
College of Engineering Celebrates Commencement 2015

The University of Tennessee College of Engineering held its spring 2015 Commencement Ceremony at Thompson-Boling Arena on Friday, May 8.

Keynote speaker for the event was Ken Huntsman, one of the founders of American Online, who earned his master’s degree in computer science at UT in 1977. Huntsman related his story to students, encouraging them to excel as they begin the next part of their journeys through life, whether they plan to continue their education or enter the workforce.

Huntsman helped create one of the first e-mail systems before going to work for a company that helped developed video games to the Atari VCS, the grandfather of home video game systems. He and others from that group later founded Quantum Computer Services, which is now known as America Online. For his contributions there, he was named an AOL Fellow before retiring in 2005.

Huntsman serves on the College of Engineering Board of Advisors at both UT and Penn State, where he earned his undergraduate degree.

In his address, Huntsman told graduates to find ways to help society.

“...the world is dependent on technology, and our collective mission as engineers is to ensure that technology is used to better humanity,” said Huntsman. “And remember that no one you admire would have gotten where they are without pushing the boundaries—whether they were technological, practical, or even social.”

Associate Dean Masood Parang emceed the ceremony, in which more than three hundred students received their diplomas, while Dean Wayne Davis addressed the graduates and Dr. Richard Bennett, director of the Engineering Fundamentals Program, read the names as the students crossed the stage.

The college’s top students, chemical engineering’s Tyler Sprouple and civil engineering’s Karen Lee, were recognized, while chemical engineering’s Chris Ludtka was honored as the National Academy of Engineering Grand Challenge Scholar. Special recognition was also given to the college’s graduating ambassadors—Michael Hutton and Amanda P. Williams of aerospace engineering and Sarah Fervan, Tyler Rowe, and Zachary Rutledge during a military induction ceremony at the end of the commencement event.

The ceremony concluded with the UT Alma Mater.

Barry Wilmore wears a UT College of Engineering T-shirt while appearing on Fox News and the International Space Station Station (ISS). Attendees also included approximately one hundred and twenty local middle and high school Science, Technology, Engineering, and Math (STEM) honor students.

As part of his Expedition 42 responsibilities, he completed three space walks that lasted several hours each. He described how physically and mentally challenging they can be.

In addition, he displayed a replica of the first functional socket wrench he printed in space using a 3D printer. He explained that 3D printer technology could be vital in the future of space exploration to make what cannot be taken into space with the astronauts. Due to weight limits for cargo, deep space missions will not be able to carry all the spare parts and tools crews may need along their journey. This game-changing technology would allow future space explorers to “print” critical tools and parts on an as-needed basis, thus freeing up cargo space for life- sustaining consumables.

After his presentation, Wilmore answered questions from the audience before visiting the vacuum chamber at the University of Tennessee Space Institute and attending a luncheon in his honor. He also presented UT with an autographed picture commemorating the 42nd ISS expedition.

COE Dean Wayne Davis and his wife, Sylvia, attended the event and enjoyed talking with the astronaut about his experiences in space. Wilmore had addressed potential engineering students from the ISS during the 2014 COE Engineers Day.

Wilmore graduated from Mt. Juliet High School before receiving an Electronic Engineering degree from Tennessee Tech and then earning a Master’s degree in Aviation Systems in 1994 from the University of Tennessee Space Institute. He went on to become a Navy Pilot before being selected as a NASA astronaut in 2000. During his recent visit to UT, he shared pictures and highlights from his one hundred and sixty-seven day ISS mission. He talked about his responsibilities during a typical day onboard the orbiting laboratory, including his two-hour daily exercise program to maintain muscle mass due to zero gravity.

Wilmore, a 1994 graduate of the University of Tennessee Space Institute, was named an Astronaut in 2000. In addition to his Expedition 42 responsibilities, he completed three space walks that lasted several hours each. He described how physically and mentally challenging they can be.

As part of his presentation at UT/CCI, Wilmore showed a nineteen-minute video with footage shot aboard the space station. Much of it was time-lapse video of Earth with photos of countries around the world, lightning storms, aurora borealis in the north, and wind swept deserts.

In addition, he displayed a replica of the first functional socket wrench he printed in space using a 3D printer. He explained that 3D printer technology could be vital in the future of space exploration to make what cannot be taken into space with the astronauts. Due to weight limits for cargo, deep space missions will not be able to carry all the spare parts and tools crews may need along their journey. This game-changing technology would allow future space explorers to “print” critical tools and parts on an as-needed basis, thus freeing up cargo space for life-sustaining consumables.

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Outstanding Engineering Faculty and Staff  recognized at the COE 2015 Faculty and Staff  wards Dinner

A recent night of recognition for outstanding achievement for the College of Engineering culminated with James B. Porter, Jr. receiving the Nathan W. Dougherty Award—the college’s highest honor—at the Holiday Inn World’s Fair on Thursday, April 9, 2015, during the college’s annual Faculty and Staff Awards Dinner.

College faculty, staff, and current and former Board of Advisors members were on hand to hear Porter, who earned his degree in chemical engineering at UT, accept the award while praising the college’s progress in recent years.

The college established the Dougherty Award in 1957 to pay tribute to the man who served as its dean from 1940-1956, and to honor engineers whose accomplishments have brought UT recognition. After graduating from UT, Porter joined Du Pont in 1966 and remained with the company, aside from a stint in the US Army, until retiring in 2008 as the company’s Vice President for Engineering and Operations. In addition to his work with Du Pont, Porter served on the college’s Board of Advisors—including as its president—as the Chairperson for the Construction Industry Institute and the United Negro College Fund of Delaware, and on the boards of the American Institute of Chemical Engineers, FIATECH, the Mascaro Sustainability Initiative, and the Fieldbus Foundation, as well as the advisory board of AICHE’s Center for Chemical Process Safety.

He received FIATECH’s inaugural award for technology leadership in 2008, which was named in his honor, as well as the 2007 Society of Women Engineers Rodney D. O’Chap Memorial Award, the 2005 Engineering and Construction Contracting Association Achievement Award, and CIS’ 2004 Caroll H. Dunn Award of Excellence. Porter currently serves as founder and president of Sustainable Operations Solutions, which helps promote safer, more efficient, more productive work environments.

Additional award recipients at the college’s Faculty and Staff Awards Dinner included:

Outstanding Support Staff Awards:

Brad Kiser, Data Analyst, Engineering Research Office

Tonya Brewer, Account Specialist, Department of Materials Science and Engineering

Jeff . and Janet P. Davis Outstanding Faculty Advisor

Dr. Ben Blalock, Blalock, Kennedy, Pierce Analog Electronics Professor, Department of Electrical Engineering and Computer Science

Moses E. and Mayme Brooks Distinguished Professor:

Dr. Stephanie TerMaath, Department of Mechanical, Aerospace, and Biomedical Engineering

Allen and Hoshall Engineering Faculty Professor:

Dr. Jens Gregor, Department of Electrical Engineering and Computer Science

Leon and Nancy Cole Superior Teaching Award:

Dr. Robert Bond, Department of Mechanical, Aerospace, and Biomedical Engineering

Charles Edward Ferris Faculty Award:

Dr. Christopher Cherry, Department of Civil and Environmental Engineering

Teaching Fellow Awards:

Dr. Lawrence Heilbronn, Department of Nuclear Engineering

Dr. Mingzhou Jin, Associate Head, Department of Industrial and Systems Engineering

Dr. Jeffrey Reinbolt, Mechanical, Aerospace, and Biomedical Engineering

Professional Promise in Research Awards:

Dr. Yanfei Gao, Department of Materials Science and Engineering

Dr. Dong Gu, Department of Electrical Engineering and Computer Science

Dr. Lawrence Heilbronn, Department of Nuclear Engineering

Dr. Fangxing Li, Department of Electrical Engineering and Computer Science

Research Achievement Awards:

Dr. Ben Blalock, Blalock, Kennedy, Pierce Analog Electronics Professor, Department of Electrical Engineering and Computer Science

Dr. Dayakar Penumadu, Fred N. Peckles Professor, Department of Civil and Environmental Engineering

Dr. George Pharr, Chancellor’s Professor, Director of the Joint Institute for Advanced Materials, Department of Materials Science and Engineering

Dr. John Schwartz, Department of Civil and Environmental Engineering

Dr. Kevin Tomsovic, Director of CURENT, Department of Electrical Engineering and Computer Science

Dr. Lawrence Townsend, Department of Nuclear Engineering Translational Research Award:

Dr. Je (Jian) Wu, Department of Electrical Engineering and Computer Science

Dr. Jane Wu, Department of Electrical Engineering and Computer Science

Dr. Jie (Jane) Wu, Department of Electrical Engineering and Computer Science

Dr. Yanfei Gao, Department of Materials Science and Engineering

Dr. Kevin Tomsovic, Director of CURENT, Department of Electrical Engineering and Computer Science

Dr. Lawrence Townsend, Department of Nuclear Engineering Translational Research Award:

Dr. Je (Jian) Wu, Department of Electrical Engineering and Computer Science
The Office of Engineering Professional Practice recently held its seventeenth annual welcome back cookout, its largest yet with more than 1,400 participants.

Office director Todd Reeves kicked off the event with the help of College of Engineering Dean Wayne Davis and UT quarterback and aerospace engineering student Joshua Dobbs.

According to Reeves, the idea behind the cookout is threefold: to welcome students back to campus in a fun way, to introduce them to his office, and to offer companies and students a chance to visit with one another.

This year’s event was sponsored and attended by nine companies: Altec, DENSO, Duke Energy, Eastman, Garmin, International Paper, MAHLE, Shaw Industries, and Southern Company.

While it was hosted with engineering students in mind, faculty, staff, and students from any discipline were welcomed to a Buddy’s BBQ spread of sandwiches, sides, and desserts.

In addition to thanking sponsors, Reeves made a special point to single out the efforts of UT’s Facilities Services, as well as others within the college and the university for setting up the event.