The University of Tennessee
College of Engineering

Mission Statement

To provide high quality education in the major engineering disciplines from the undergraduate through doctoral levels through a creative balance of academic, professional, and extracurricular programs;

To foster and maintain mutually beneficial partnerships with our alumni, friends, industry, and local, state, and federal governments through public service and collaborative research; and

To be a major contributor to our nation’s technology base through scholarship and research.

Annual Report 2015

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Fiscal year 2015, which ended in June, was an excellent year for our college! Our faculty, staff, and graduate teaching assistants were engaged in providing the best education to an increasingly larger number of undergraduate and graduate students. We graduated eighty-five PhD students and our freshman class was the largest ever. All indications are that Fall 2015 will see a continuation of that trend thanks to the recently announced Volunteer Scholarships for both in-state and out-of-state students. The great news is that those entering students are highly engaged in their education, participating in our world-class Engineering Co-op program, in undergraduate research experiences led by our faculty, and in international exchange programs. Many of our students are the recipients of our scholarships and those of our donors and friends of the college as well as from corporations. An excellent example of the academic support we receive is the opening of the new Eastman Unit Operations Laboratory in April. This was also a year in which our college’s US News & World Report rankings as a doctoral granting public college of engineering increased to 36th and 32nd, respectively at the graduate and undergraduate levels. We ranked 4th in nuclear engineering and have an excellent reputation for our world-class research programs. These all enhance our existing programs such as the NSF-DOE Engineering Research Center—CURENT, our Reliability and Maintainability Center, and our co-op programs. Couple these with the activities that our alumni are involved in worldwide and our college and its graduates are making a huge impact globally (and even outside of the world as we had two MS graduates who consecutively commanded the International Space Station in 2015!). It is a great time to be a Vol and we hope that you enjoy reading in this year’s annual report about some of the exciting things in which our faculty, students, and alumni are engaged!

Wayne T. Davis
Wayne T. Davis Endowed Dean's Chair in Engineering
Knoxville native Duncan Greeley grew up hearing stories of collaborations between the University of Tennessee and Oak Ridge National Laboratory (ORNL). Coupled with his parent’s encouragement to seek an education in a technical field, he was intrigued by the possibility of getting involved with groundbreaking research.

“While I have been interested in engineering ever since high school, narrowing in on a major has always seemed daunting,” said Greeley. “I was fascinated by a wide variety of industries—aerospace, marine, and renewable energy to name a few.”

A summer pre-college program offered by the College of Engineering (COE) helped him focus his interests.

“I attended an American Society for Metals (ASM) International Materials Camp hosted by the Department of Materials Science and Engineering (MSE),” he said. “During that week, I was introduced to the unique and interdisciplinary field of MSE, and found that it matched my interests in a way that I would have never expected.”

This match has helped Greeley, now a senior, thrive as an undergraduate student in MSE. He is a member of both the Chancellors Honors Program and the Tennessee Student Assistance Corporation Ned McWherter Scholars Program. He’s also in the engineering honors society Tau Beta Pi, and is a COE Ambassador (Chair for 2014–2015).

He earned the Best Poster award for "Modeling Oxygen Permeability in Biodegradable Polymer Films" in the UT Center for Materials Processing Summer Research Poster Competition in July 2013, and also a Best Undergraduate Poster award in the Oak Ridge Chapter of ASM International Student Poster Competition in November 2013. His studies have benefitted from a series of scholarships: the Herbert and Lillian Duggan Engineering Scholarship; the Jerry E. Stoneking Memorial Scholarship, the Thomas D. Dunlap Scholarship; the Shek Hong Scholarship; and the Racheff Scholarship and Fellowship in Metals.

He credits the Honors Engineering Fundamentals faculty—Drs. Chris Pionke, Roger Parsons, and Kevin Kit—for giving him the foundation and motivation to properly pursue opportunities.

“They challenged our class to work as a team and think critically to solve problems, and were always willing to sit down individually and offer guidance,” he said. “Chris Wetteland, the coordinator of the MSE undergraduate laboratory courses, has also been an incredible resource for technical mentorship and advice on research skills such as literature review, data analysis and interpretation, and technical communication.”

Outstanding Undergraduate Student: Duncan Greeley

Greeley enjoys volunteering with the Chancellor’s Honors Program Community Service Committee,” said Greeley. “I also enjoy volunteering with the Chancellors Honors Program Community Service Committee.”

Greeley has also enjoyed the benefits of the internship program offered through the COE Office of Engineering Professional Practice.

“I was a research intern at ORNL in the Science Undergraduate Laboratory Internship (SULI) program, investigating the use of the eco-derived polymer lignin in chopped-carbon-fiber-reinforced polymer composites,” he said. “For my second internship, I worked at the Boeing Company in process development and optimization for environmental stress rupture testing of materials in the Boeing Research and Technology Huntsville Laboratories.”

These internship, project, and course experiences gave Greeley exposure to the wide range specialties and sub-disciplines within materials science, as well as varying work environments in academic research, government research, and industry. He is investing this knowledge into his own research projects.

“Based off of interest arising from a course on metallic materials, I plan on starting a new research project involving metal additive manufacturing,” said Greeley. “After graduation I plan to pursue a PhD in MSE and continue to work in industry.”
Caroline Black, a doctoral student in biomedical engineering, stayed on the move throughout 2015. She planned her dissertation proposal while maintaining her excellent surgical robotics research, earning her notice as the College of Engineering's Outstanding Graduate Student for the year 2015. Along the way, she married a fellow engineer and also organized an event designed to inspire pre-college students to become engineers.

Black has long shown this type of drive. She forged her own path as an undergraduate at the University of Alabama at Huntsville, near her hometown of Madison, Alabama.

"I was interested in engineering and in the medical field," said Black, who found that the availability of biomedical courses was limited. "So I invented my own approach—I got a double degree in nursing and engineering."

This curricular combination gave her a dual viewpoint in problem solving, and helped her to win several awards in her undergraduate years.

"Several of those competitions were oriented to making the world a better place by using engineering to improve healthcare, the delivery of disaster aid, and the education system," said Black.

Dr. Caleb Rucker, assistant professor in the Department of Mechanical, Aerospace, and Biomedical Engineering (MABE), noticed Black's work and encouraged her to consider UT for her graduate studies.

"The tours that I had here and the people that I met let me know that this is where I need to be in order to take the next step in blending my two passions," she said. "Once I saw the campus and met with the professors, I realized how the university was committed to, not just research, but outcomes. I realized that UT had a mission to benefit the world and that is what I wanted to do as well."

Black was welcomed to UT with the Chancellor's Fellowship, which included full tuition and a stipend.

"I was honored to have received the award and very grateful for the benefits it gave me," she said. Black later received a National Science Foundation (NSF) Graduate Research Fellowship.

In her first semester at UT, Black built an initial design of a parallel continuum robot. She and Rucker co-authored a paper on the project, titled "Toward Parallel Continuum Manipulators," which earned the "Best Manipulator" award at the 2014 IEEE Conference on Robotics and Automation (ICRA), held in Hong Kong. Her research continues to focus on robotics, specifically surgical robots that could improve techniques in prenatal surgery.

"The long-term impact of this research will reduce human suffering by lowering the risk and cost of treatment for one of the most vulnerable patient demographics: the unborn child," she said. "My research is also relevant to natural orifice surgical interventions and endoscopic procedures."

Dr. Caleb Rucker's "selection" was for knowledge and Dr. William Nance's experience and enthusiasm for robotics with influencing her academic success. Working with Rucker gave Black the opportunity to also remain on the cutting edge of new grant applications, an aspect of research she had been unfamiliar with.

"In working through the many requirements for these types of applications, I have realized that it is simply not enough to have good science—you have to also be able to communicate that to others," she said.

Black showed off more communication skills in organizing the STEMpunk reverse science fair for the College of Engineering's 2015 Middle School Introduction to Engineering Systems (MITES) summer camp. Her event gave virtual pre-college students hands-on experience with science.

"I have always enjoyed the possibility of teaching," said Black. "It is fun to see the excitement in the kids' eyes. I really enjoy the challenge of having to convey to kids the excitement of the subject matter."

"My work at UT has found me on several different teams," said Black. "I have worked not only with engineers but also with mathematicians, physicists, biologists, psychologists, educators, and even artists. I have also been given the opportunity to work with the younger generation. The things I have enjoyed the most are learning from all these different groups, not only about science and engineering but how we learn the things we learn."

Black enjoys learning in all aspects of life, especially if it keeps her moving forward—or upward. Her husband, Justin Black, has been teaching her to rock climb.

"I love climbing and hiking," she said. "I am also a novice ballroom dancer. I can foxtrot, waltz, and swing."
Faculty-Led Study Abroad

A record nineteen students participated in this year’s engineering in London program. From Newtohn to White to Tallinn, Estonia, and a central city in the development of nuclear engineering fields, said Dr. Roger Parsons, director of Engineering Outreach. The students in this program trip on an extensive field trip package to lend context to their coursework.

One of the most exciting and unique parts of the trip is visiting Bletchley Park,” said Austin Boyd, an electrical engineering major. "Seeing the Enigma machine and seeing the Turing museum on the site where computing innovator Alan Turing helped develop the machine was an incredible experience." He also mentioned that the students saw the Bletchley Park Memorial, which is dedicated to those who worked there during the war.

For the fourth year, Dr. Glenn Tootle (formerly of UT and now of the University of Alabama Department of Civil Engineering) led a joint Alabama-UT student group on a trip called Water Resources in the European Alps. Based in Innsbruck, Austria, six COE students received credit for this trip. The students visited a number of locations in Austria and the Italian Alps, including the Grossglockner glacier, which is scheduled to become a home for girls aging out of the foster care system.

In addition to the project, the group toured the Grossglockner, including a look at the Czech Castle, which generates hydroelectric power. They also visited the city of Graz, where the students had their second group field excursion and were hosted by the city mayor.

The Alternative Fall Break took place in August, in Quito, Ecuador, with four COE students. A day care center funded by the university and private donations, Semillas Esperanza, or Seeds of Hope, was the project location. About 100 children, ages four and below, use the center while their parents are at work.

Students installed protective netting along the stairways, so that the children would not fall off while going up and down. Repairs were also made on playground equipment, and rooms were given new surfaces that would not fall off while going up and down. Repairs were also made on playground equipment, and rooms were given new surfaces that would not fall off while going up and down. Repairs were also made on playground equipment, and rooms were given new surfaces that would not fall off while going up and down.

Global Initiatives

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An Alternative Winter Break took eight students to the city of Guayaquil, Ecuador, in December. The group combined an alternative spring break with the task at hand, even though it was hard work.”

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The COE Teaching Fellow Award is presented to faculty members who possess an exceptional record of graduate and undergraduate teaching and a strong performance in teaching-related service activities, and whose efforts clearly contribute to the overall mission of the college. The awards were established to award superior teaching.

Degrees Granted 2014-2015

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<th>Bachelor of Science (BS)</th>
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<th>Doctorate (PhD)</th>
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Student Body 2014-2015

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Engineering Enrollment Trends by Academic Year

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College of Engineering 2015 Teaching Fellows

The COE Teaching Fellow Award is presented to faculty members who possess an exceptional record of graduate and undergraduate teaching and a strong performance in teaching-related service activities, and whose efforts clearly contribute to the overall mission of the college. The awards were established to award superior teaching.
The COE Professional Promise in Research Award was established to award young faculty members who are making significant contributions to the college’s research mission. The 2015 award recipients include:

Dr. Yanfei Gao, Associate Professor, Materials Science & Engineering

Dr. Yanfei Gao's research interests are mostly focused on small scale mechanical behaviors at and below the nanometer scale. He has developed advanced functional materials. He has mentored with several PhD candidates, as George He, the first student who defected from his thesis, successfully entered the industry. His work includes the development of new materials, the evaluation of existing materials, and the use of new methods and insights into dynamic techniques. Dr. Gao's research focuses on small scale mechanical behaviors at and below the nanometer scale. He has developed advanced functional materials. He has mentored several PhD candidates, including George He, who defected from his thesis and successfully entered the industry. His work includes the development of new materials, the evaluation of existing materials, and the use of new methods and insights into dynamic techniques.

Dr. Jie (Jayne) Wu, Associate Professor, Electrical Engineering & Computer Science

Dr. Jie (Jayne) Wu has invented, implemented, and patented several methods in the area of AC electrokinetics-based microfluidics, lab-on-a-chip and microfluidic-on-chip systems. Her research focuses on the development of optimization and intelligent system methods for the electric power system. The power system consists of a vast array of devices that interact both through their physical connection and indirectly through communication methods. The research expenditure has been dedicated to developing methods for the electric power system. The power system consists of a vast array of devices that interact both through their physical connection and indirectly through communication methods. The research expenditure has been dedicated to developing these methods for the electric power system.

Translational Research Award. The purpose of the COE Award for Translational Research is to identify a faculty member whose research has achieved significant benefit through the development of industrial, clinical, or service-oriented patents, or business start-ups.

Dr. Junke Wu, Associate Professor, Electrical Engineering & Computer Science

Dr. Junke Wu has worked on the development of microfluidics and microfluidic-on-chip systems, lab-on-a-chip, and microfluidic-on-chip systems. Her research focuses on the development of optimization and intelligent system methods for the electric power system. The power system consists of a vast array of devices that interact both through their physical connection and indirectly through communication methods. The research expenditure has been dedicated to developing these methods for the electric power system.

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Dr. Taylor Eighmy, UT vice chancellor for research and engagement, co-chair of the Manufacturing Institute, and溽 noted the project and Governor’s Chair Babu, and Fred N. Peebles Professor Dayakar Penumadu from the CEE department were also major participants in the proposal. "I was involved with the IACMI core team since its formation, representing the Department of Mechanical, Aerospace, and Biomedical Engineering as well as ORNL. The IACMI plan dovetails with the DOE’s Clean Energy Manufacturing Initiative by encouraging collaboration and moving forward with production methods and materials that require less energy and resources. Dr. Craig Blue, a joint UT-ORNL faculty member, will be the IACMI Chief Executive Officer.

"Having IACMI will not only help cement expertise in traditional manufacturing, but will bring additional services and benefits to our students, faculty, and professors through the institute’s educational and entrepreneurship programs. The IACMI plan dovetails with the DOE’s Clean Energy Manufacturing Initiative by encouraging collaboration and moving forward with production methods and materials that require less energy and resources.

"I am proud to say that the vision I have long harbored of advancing the state of manufacturing and sustainable design is being realized with IACMI’s leadership at UT. I am confident that UT and ORNL have the right expertise and resources to lead this significant effort.

"This selection, along with our Governor’s Chairs, our strategic focus on advanced manufacturing, and our faculty’s applied research into woven composites, carbon fiber and thermoplastic composites, will have tremendous economic and social impact.

"We look forward to our role in advancing manufacturing innovation.

Besides working on the 3-D printed carbon fiber replica of a Shelby Cobra at Techmer PM, a plastics fabrication company based in Clinton, the team included Babu envisions unique research opportunities for students as well.

"Both undergraduate and graduate students will be involved in this institute at every stage from research to manufacturing to entrepreneurship. The outreach efforts will serve to engage the region, our students and the public with world-class research and educational opportunities with IACMI as it evolves."

Additional COE professors involved with IACMI include Dr. Gajanan Bhat, a professor in the Department of Materials Science & Engineering and the director of the Institute for Energy, Efficiency and Renewable Energy (IEEER), and Dr. Pradeep Mani, a professor in the Department of Industrial and Systems Engineering.

The Shelby Cobra 3D printed car, which was highlighted during Obama’s visit as an example of the changing world of manufacturing, was produced with major contributions from a pair of student interns from UT’s College of Engineering—Alex Roschli and Andrew Messing.

"The car was designed and built by students with the technical expertise and skills to make it a reality. This is the future of manufacturing; a future that will bring jobs back and keep the US competitive in the global economy.

"This represents the promise of IACMI, that we are dedicated to making right now.

The car, which was designed and built by students with the technical expertise and skills to make it a reality, exemplifies the future of manufacturing and the promise of IACMI. The car was designed and built by students with the technical expertise and skills to make it a reality, exemplifying the future of manufacturing and the promise of IACMI.

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Related video: https://www.youtube.com/watch?v=VobUkNKpCGE.

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Related video: https://www.youtube.com/watch?v=VobUkNKpCGE.
The day started with breakfast for a small group of students in the Executive Dining Room of the University Center. Engineering Alumni Dwight Hutchins (BS/ME ’87), Rodney Brooks (BS/ChE ’86) and Cavanaugh Mims (BS/EE ’76) chaired the meeting, which focused on efforts to save $1 million for three specific EDP funds—the Engineering Diversity Graduates Join Together to Celebrate as the University Dedicates Fred D. Brown Jr. Residence Hall.

The building includes an art gallery, two restaurants, recreation and workout facilities, Internet and conference lounges on every floor—even its own post office. The Fred D. Brown Jr. Residence Hall is the first building at the University of Tennessee named for an African-American.

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College of Engineering Celebrates Opening of New Eastman Unit Operations Laboratory

The ribbon-cutting ceremony for the new Eastman Unit Operations Laboratory took place under a tent just outside the Nathan W. Dougherty Engineering Building. The ribbon-cutting team included COE Dean Wayne T. Davis; Alvin and Sally Beaman Chair of Chemical and Materials Engineering, Bamin Khomami; Mark Cox; and Etta Clark.

In particular, students can go through the process of converting raw materials into finished products. The facility is designed to help them prepare for their careers in industries that will continue to thrive in the coming years.

The new laboratory will include comprehensive educational knowledge from the Dougherty engineering building and will be used to demonstrate the design and operation of the pilot plant. It will also be used for undergraduate and graduate research, as well as for additional laboratory and educational purposes.

New Landscaping Projects Enhance Engineering Campus

Beginning in May, the courtyard area between Perkins and Ferris Hall and the areas in the Science and Engineering Building has been closed to visitors as part of an extensive landscape renovation project. The project, which is being conducted in phases, is expected to be completed by the end of the fall semester.

The installation of new concrete sidewalks and pathways, as well as the addition of trees, will improve pedestrian access and accessibility for students and visitors to the engineering campus.

The Perkins-Ferris Courtyard

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Outstanding Faculty: Dr. Jamie Coble

Dr. Jamie Coble’s ties to the East Tennessee region brought her home to become an assistant professor in the Department of Nuclear Engineering at the University of Tennessee.

Coble was born in Florence, Alabama, and grew up primarily in Johnson City, Tennessee, where her father worked for the Tennessee Valley Authority. The family lived all along the Tennessee River Valley.

Coble’s interest in engineering came about via influence from family and friends and through the encouragement of her math and science teachers. “When I was growing up, I had several friends whose dads were scientists and engineers at local companies—most of Nuclear Fuel Services and Extranuclear,” Coble said. “I followed with their interests in science and engineering, and the opportunities were very exciting. I enjoyed applying mathematics and science to solve real-world problems and discover engineering. U.S. nuclear engineering in an area with a lot of opportunities. When I was choosing a major my freshman year, the prevailing nuclear resistance was all the buzz.”

Coble received all four of her degrees from UT—a bachelor’s degree in nuclear engineering and mathematics in 2005, a master’s degree in nuclear engineering in 2006, a master’s degree in reliability engineering in 2009, and a PhD in nuclear engineering in 2010. Coble initially went to work at Pacific Northwest National Laboratory after receiving her doctorate degree, working as a staff scientist in the Applied Physics group for two years. Although she enjoyed the work, she missed the university and the Appalachian Region. When the opportunity came up to return to UT as an assistant professor, she eagerly accepted it. Although she enjoyed the work, she missed the university and the Appalachian Region. When the opportunity came up to return to UT as an assistant professor, she eagerly accepted it. Coble commented, “It’s a fantastic education at UT, and I am very much in awe of the department on this side of the classroom. The department has experienced impressive growth over the last seven years, in terms of student body, faculty, and research. We have excellent department on this side of the classroom. The department has experienced impressive growth over the last seven years, in terms of student body, faculty, and research. We have excellent...  

Coble is also optimistic about the possibilities for nuclear power in the future. “This is a very exciting time for the nuclear power industry. People are starting to recognize the value of nuclear power as a clean, reliable source of energy and a necessary part of our energy future,” Coble said. “We attract some of the best nuclear engineering students at both the undergraduate and graduate level,” Coble commented. “With our close proximity to Oak Ridge National Laboratory, TVA, and the Southern Company, we’re uniquely positioned to offer students a lot of opportunities for research and industry internships.”

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Coble also enjoys her role in teaching future nuclear engineers, and UTNE students are some of the best and brightest in the country. “I got a fantastic education at UT, and I am very much in awe of the department on this side of the classroom. The department has experienced impressive growth over the last seven years, in terms of student body, faculty, and research. We have excellent...”

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Coble’s future goals include expanding on the current work in monitoring and diagnostics for small modular reactors. “As we move away from fossil fuels for our baseload energy generation and develop markets for small modular reactors, we expect a lot of growth...”

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An innovation that forms the backbone of Kevin Tomsovic’s research is the use of wind turbines for their ability to produce maximum power. Tomsovic’s work explores the economic and environmental benefits of using wind turbines, particularly in areas where electrical power is not readily available. His research focuses on control methods and optimization for the grid, as well as the development of sustainable energy systems.

In high school, Tomsovic was a stereo nut and found a job repairing electrical equipment for the local radio station, which was the first step towards his career in engineering. His early interest in engineering was sparked by an attraction to math and science, and he has continued to develop his skills throughout his career.

Tomsovic received his bachelor’s degree from Michigan Tech and his master’s and PhD degrees from the University of Washington, where he joined the faculty and was named Outstanding Faculty in 2003, 2005, and 2006. He was a recipient of the NSF ERC award for his work on research, education, and technology for sustainable energy systems with an emphasis on power transmission systems at UT. The result was a five-year, $18 million award from NSF on the Center for Ultra-wide-area Resilient Electric Energy Transmission Networks (CURENT), a National Science Foundation (NSF) Engineering Research Center (ERC) that is funded by the NSF and the Department of Energy (DOE). CURENT is a National Science Foundation (NSF) Engineering Research Center (ERC) and is the NSF’s only ERC in Energy.

Outstanding Faculty: Dr. Kevin Tomsovic

Kevin Tomsovic is also the former head of the Department of Electrical Engineering & Computer Science, which was designated for a new electrical engineering and computer science building to be named in his honor. The Department of Computer Science, previously a part of the College of Arts and Sciences, merged with EECS in July of 2007, greatly expanding the faculty and the research capabilities of the department.

As director of CURENT, Tomsovic is responsible for overseeing the center’s research, education, and technology for sustainable energy systems with an emphasis on power transmission systems at UT. The result was a five-year, $18 million award from NSF on the Center for Ultra-wide-area Resilient Electric Energy Transmission Networks (CURENT), a National Science Foundation (NSF) Engineering Research Center (ERC) that is funded by the NSF and the Department of Energy (DOE). CURENT is a National Science Foundation (NSF) Engineering Research Center (ERC) and is the NSF’s only ERC in Energy.

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Research Feature: Dr. Arthur Ragauskas

Dr. Arthur Ragauskas, the COE’s Governor’s Chair in Biorefining, has a vision for the future of energy research in the US.

“Research involves a very high degree of curiosity and addiction. I have a passion for questions. The type of questions that I very supportive of intra-disciplinary research, a national and internationally recognized agriculture-industry programs, and the exciting opportunities provided by ORNL, and their commitment to excellence in plant science/biorefining, computational modeling, and neutron science,” Ragauskas commented. “Truthfully, there are few, if any, other places that provide researchers with the opportunity to have such an impact on converting biomass to biolateral and biobased materials and chemicals.”

Several factors attracted Ragauskas to the Governor’s Chair position at UT.

“UT has an incredible resource base in this field, starting with students that want to make a difference in the world. UT is a very strong research institution that is very supportive of interdisciplinary research, a national and internationally recognized agriculture-industry programs, and the exciting opportunities provided by ORNL, and their commitment to excellence in plant science/biorefining, computational modeling, and neutron science,” Ragauskas said. “Although my group is not a plant science group, we benefit tremendously in exchange ideas with and help in problem solving, and, equally important, I truly believe that all bioengineering technologies will benefit from the training received at UT, our national and internationally recognized agriculture-industry programs, and the exciting opportunities provided by ORNL, and their commitment to excellence in plant science/biorefining, computational modeling, and neutron science.”

Ragauskas is excited about future opportunities at UT.

“The students, faculty, and support staff at the University of Tennessee make me a better researcher, teacher, and mentor,” he said.

For more information on Ragauskas and his research, visit www.engr.utk.edu/cbe/faculty/Ragauskas/default.html.
Funding in the College of Engineering moves from one success to the next because our donors understand that philanthropic investments drive accomplishment. Each commitment amplifies our efforts to provide an even better engineering education that will benefit each student who walks through these doors. This report highlights selected new commitments in fiscal year 2014-15. The total for all gifts this year is just over $67 million.

Faculty support remains priority one because great faculty members are the core of a great university. Our faculty teach, mentor, and work to discover solutions to global problems. We want UT engineering students studying with individuals who will challenge them to explore broadly, learn deeply, and become problem solvers. Five new faculty funds totaling over $3 million were created or enhanced this year including the Dr. John Prados Professorship in Chemical and Biomolecular Engineering; the Jerry and Kay Henry Professorship, awarded to Dr. David Mandrus; the Dr. Edwin G. Burdette Professorship in Civil Engineering; and the Richard Rosenberg (BS/ME ‘54) Professorship in Mechanical Engineering. The Frank C. Smartt (BS/ME ‘47) Faculty Award was also endowed this year.

Freshman enrollment growth means we need more of everything: more space, more supplies, and more graduate teaching assistants for this time-intensive curriculum that focuses on student learning. Tom (BS/ME ‘72) and Elaine Edwards added significantly to their existing Endowment for the Jerry E. Stoneking Engage™ program, providing new support for graduate teaching assistants in the freshman program.

The Diversity Challenge made tremendous progress with new support from Robert (BS/CE ’81) and Rosalind Lewis and a mini-challenge from Dr. Mark Dean (BS/EE ’79), Fisher Distinguished Professor. With three years to go, $550,000 has been secured towards the $1,000,000 goal.

Big Orange Give was a huge success for engineering! Year two of UT’s fall social media-driven engagement platform built with an engineering goal of $25,000 (plus $10,000 from the John Tickle ‘65 Matching Challenge) and John Tickle (BS/IE ‘65) match resulted in a total of $171,228 raised in one week. Donors designated to funds of their choice—college and department funds, engineering scholarships, diversity programs, and student-led projects. Jen Womack’s win on the inaugural UT Million Give: Impact Challenge was announced at the 2015 Eastbay GAC.

Development Update

Development Report: $67 Million in Banner Year

The Estabrook Society, formed to recognize documented or realized estate commitments for the College of Engineering, added new members including: Dr. Ronald A. Cook (BS/CE ‘75, MS/CE ‘81) and Kathy J. Caldwell, PE (BS/CE ‘85); Janus Ellenburg (deceased), widow of Bob Ellenburg (BS/EE ‘42) also deceased; John Kennerly (BS/ChE ‘65), deceased; Mel Mingle (BS/ME ‘58); Ron (BS/EE ‘69) and Jessica Morris; Suzanne Roat (MS/ChE ‘87, PhD/ChE ‘91); Terry Holland (BS/CE ‘70, PhD (UK) ‘97) and Ben Abravanel (BS/EE ‘72, PhD/EE ‘88), deceased. Planning in a Will, creating a Trust, or designating UT Engineering as a beneficiary of an IRA, can be a simple but meaningful way to impact the future.

Among the new scholarships established this year are: the Dr. Robert E. Uhrig Graduate Scholarship in Nuclear Engineering; the John and Kay Bolen Honorary Endowment; and the Belford Family Scholarship in Mechanical Engineering. The Checking Account Endowment, a $100,000 gift from the Kyes Family, was also received this year.

The power of these gifts and commitments will be felt for decades to come.
Dr. Leslie Benmark

As a teenager, Leslie Benmark was born in Illinois during World War II and her family was relocated to the Tallulah Army base in Louisiana where her father was serving in the military. Leslie’s family was transient during World War II, due to her father’s military service in the Army where her father was serving in the military. Leslie Benmark was born in Illinois during World War II and her family was relocated to the Tallulah Army base in Louisiana where her father was serving in the military. Leslie’s family was transient during World War II, due to her father’s military service in the Army where her father was serving in the military.

Leslie Benmark was in the process of earning her bachelor's degree in engineering at the University of Tennessee when she was approached by a recruiter from Texas Instruments to join their workforce. Leslie was interested in the opportunity and accepted the position, which led to a successful career as an engineer.

Benmark graduated from high school in 1962. "At that time there was a national shortage of engineers," said an apparent US 'shortage' of engineers. 'Throughout high school, I enjoyed and made good grades in science courses and math.

"I began my employment with DuPont with a BS degree," Benmark commented. "While working for DuPont, the company paid for me to earn a MS degree in Industrial Engineering. I was fortunate to have co-op work experiences with computers and, after returning to DuPont, I was given responsibility for computer centers for all of my technical terminals. I was able to obtain a lead position in one of the computer centers which enabled me to use my BS degree in Industrial Engineering. I was able to continue my studies in the university and to work for DuPont as a full-time employee and consultant for several years." Benmark began her career with DuPont as a Systems Analyst, then as a Systems Analyst at Digital Equipment Corporation. During this time, she earned her master's degree in Industrial Engineering from Vanderbilt University and a Juris Doctor degree in Law from the University of Tennessee Martin School of Law.

Benmark received an offer from the DuPont Company at the manufacturing facility near Nashville after graduation, so when she inquired with the company to see if the job was still open, they said yes. Benmark ended up working for DuPont for thirty-seven years. "I decided to apply for the Co-operative Engineering Program where, quarterly, I would have the opportunity to work in industry for several weeks. I was able to work as a co-op engineer, primarily for the monies I could earn during the work sessions in industry. The most important results of my co-op periods were my growing interest in computers and statistical methods. As a Certified Six Sigma Black Belt, Benmark was responsible for the design and implementation of statistical process control and quality improvement programs. She has received numerous awards for her contributions to the field of quality engineering and management. In addition to her work and activities as a professional engineer, Benmark has been extensively involved with the Civitan organization, and is currently serving a term on the Civitan International Board of Directors.

Benmark has been married to Dr. Gary Benmark (PhD in Public Policy Administration from University of Michigan, MD in Health Science from UT) for almost thirty years. They have a daughter, Robin, and two grandchildren, Max and Emily. When not seeing the world, they live on twenty-eight acres in Metro Nashville/Davidson County and enjoy country life that includes maintaining the acreage and many other outdoor pursuits.

Benmark believes her engineering academic studies at UT were very important in her successful career.

"The industrial engineering curriculum at UT provided an excellent, broad foundation for an individual seeking a career with major companies," Benmark commented. "I believe this broad engineering and business education, along with almost two years work experience as a co-op engineer enabled me to function immediately in my first full-time work experience with the Monsanto Company and continued to support me in a number of varied positions with the Monsanto Company.

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A night of recognition for outstanding achievement for the COE culminated with James B. Porter Jr. (right) presenting the Nathan W. Dougherty Award to Mr. James Porter (left). COE Dean Wayne Davis (left) presents the Nathan W. Dougherty Award to Jim Porter (right).

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Vision Statement

The College of Engineering is resolved to become one of the country's Top 25 public engineering educational institutions. To bring this vision to reality, our college is committed to these five charges:

- Attaining national and international recognition among peer institutions for excellence in both research and teaching;
- Assembling a dynamic body of faculty who exemplify excellence and innovation in the pursuit and delivery of knowledge that will perpetuate the highest standards of engineering education for future generations;
- Graduating students who are well educated in technical knowledge, with solid communication and teamwork skills, who can compete successfully in the global business world and contribute significantly to the national base of engineering education and technology;
- Investing strategically in the college's most important resources—students, faculty, and programs—through the vigorous acquisition of private gifts from individuals, corporations, and foundations;
- Partnering with academic, industrial, and government entities that share and enhance the mission of the College of Engineering so that our educational and collaborative efforts result in the maximum, positive, economic impact locally, regionally, nationally, and globally.

Financial Information

Total Expenditures

- Recurring & Nonrecurring State Funds: $47,230,549
- Total Expenditures: $115.4 Million

Fiscal Year 2015

Resources: Recurring & Nonrecurring State Funds

- Salaries & Benefits: $39,014,62
- Miscellaneous Operating Expenses: $6,733,142
- Equipment & Software: $1,482,788
- Total: $47.2 Million

Gifts, Grants & Contracts by Department/Center

- Administration: $1,644,289
- Chemical & Biomolecular Engineering: $4,977,592
- Civil & Environmental Engineering: $6,512,253
- Electrical Engineering & Computer Science: $15,087,604
- Engineering Fundamentals Division: $202,778
- Industrial & Systems Engineering: $1,828,630
- Materials Science & Engineering: $15,722,943
- Mechanical, Aerospace & Biomedical Engineering: $4,988,883
- Nuclear Engineering: $10,482,580
- Research Centers: $11,209,678

Total: $68.2 Million