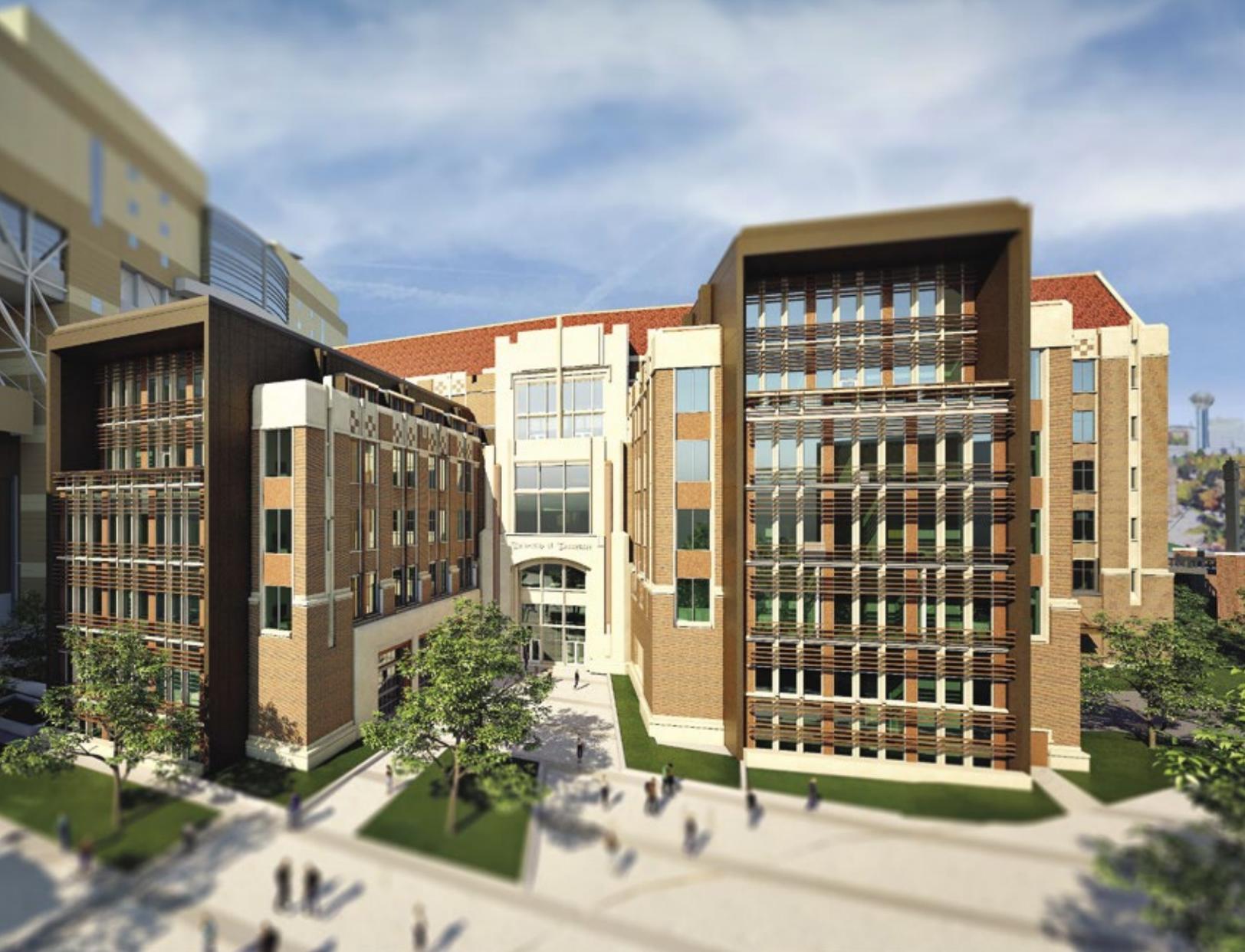


**T** TICKLE  
COLLEGE OF ENGINEERING  
THE UNIVERSITY OF TENNESSEE, KNOXVILLE

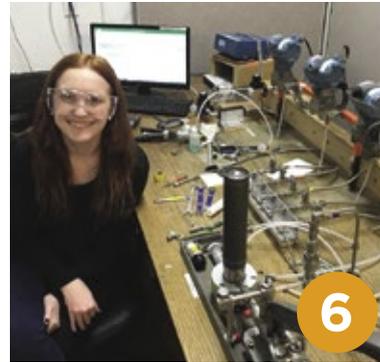
BREAKING GROUND ON THE GATEWAY TO ENGINEERING  
2018 ANNUAL REPORT



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*The cover features a rendering of the New Engineering Complex. Renderings courtesy McCarty Holsaple McCarty in collaboration with SGJJR.*

## DEAN'S NOTE



### Progress fuels momentum, and the Tickle College of Engineering is excelling in both.

We recently welcomed the largest freshmen class in our history to the Engineering Vols family, continuing the momentum that has seen us grow enrollment 94 percent since 2005. This year, we also graduated our largest ever cohort of doctoral students in May, with 118.

The Min H. Kao Electrical Engineering and Computer Science and John D. Tickle Engineering buildings have transformed our ability to serve our students and faculty as they conduct cutting-edge research. We just broke ground on our as-yet unnamed 228,000-square-foot new engineering complex that will further solidify our foundation for success and provide future students an unmatched facility in which to learn, innovate, and grow.

Once again this year, our incoming freshmen class averaged better than a 4.0 GPA and 31 on the ACT. Across all disciplines, our senior design students are solving problems for community organizations with new, inspired ideas. As you read through our annual report, you'll discover faculty members who are mentoring those students as well as impacting the world around us in important and exciting ways.

Suresh Babu, our UT-ORNL Governor's Chair for Advanced Manufacturing, landed UT's first-ever MURI award in order to help the US Navy improve its fleet, and Distinguished

Professor Jack Dongarra received a major grant that will help bring exascale computing to our college.

Our Innovation and Collaboration Studio continues to transform with new equipment and methods to provide boundless opportunities for our students to make and create whatever they can imagine, while our Jerry E. Stoneking *engage*™ Engineering Fundamentals program teaches students to work together and create shared solutions as part of a unified effort to better prepare our students to succeed in their advanced coursework and future careers as engineers.

And speaking of innovating, you'll read how UT is a leader in advanced manufacturing and that East Tennessee continues to grow and dominate as a destination for research and development in that field.

Now is a great time for our college, and an even better time to work together with us. I welcome and encourage you to reach out to discuss collaborative opportunities for the betterment of ourselves and of the world around us.

Regards

Mark Dean  
Interim Dean, Tickle College of Engineering



## MAKING IT WORK

*By David Goddard.*

Championed by then-dean Jerry Stoneking and backed by NSF funding, the *engage* program that now bears Stoneking's name has served as a stepping-off point for freshmen entering the college since it launched 20 years ago. A key component is the Innovation and Collaboration Studio on the lower floor of Perkins Hall.

Edwards Assistant Dean and Director of Integrated Engineering Design Keith Stanfill said the space is a "super powerful" recruiting tool because it allows future students to see classroom knowledge take form in reality.

Richard Bennett, director of *engage*, recognized the value of having a "wow" factor for the space to inspire and encourage work across class-levels.

Tommy Duong, who, along with Michael Allen, helps run the ICS and advise students, noted that such interactions are beneficial to both upperclassmen, who might be inspired by an idea from a younger student, and underclassmen, who pick up techniques their older collaborators have learned.

There are many state-of-the-art machines in ICS, including the standard icon of any such space, the 3D printer. But what stands out as a practical and vital skill is wood working.

Through wood, the lab mimics the real world: no business scales up a product without first running smaller tests, and using wood for prototyping cuts down on both cost and time.

"If a picture is worth one thousand words, then a prototype is worth one thousand pictures," Stanfill said. "Innovation is about failing fast and failing cheap. That's how you learn. Failure isn't a dirty word in innovation."

The college's new engineering complex (read more, page 18) scheduled to open in 2021—when this year's incoming freshmen will be seniors—will raise the profile and promise of ICS to unprecedented levels.

Alumnus Min Kao (MS/PhD EE, '74/'77) and his wife recently made a transformative gift to the college to specifically enhance the space in the new building, where it will become the Min H. and Yu Fan Kao Innovation and Collaboration Studio.

The new space will have a full electronics shop, metal shop, and a six-axis robotic arm, with the possibility for fiber lasers, plasma cutters, vacuum form machines, and welding. Large glass partitions will allow visitors to observe activity and adjustable entranceways will allow for maker fairs.

It will also allow the team to fully realize integrating different class levels and disciplines together, as well as increase industry collaboration through student projects.

# RANKINGS UPDATE

The college is progressing in many ways, including enrollment, research expenditures, programs offered, and academic support. Take a look at how we're doing.

## Academics

Ranked **33rd** (undergraduate) and **29th** (graduate) among public colleges of engineering (*U.S. News & World Report 2019*).

Seven departments with nationally ranked programs and seven internationally known research centers.

## Total Full-Time Enrollment

Undergraduate: 3,509  
 Graduate, MS: 381  
 Graduate, PhD: 728  
 Total: 4,618

## Degrees Granted

Bachelor of Science: 629  
 Master of Science: 239  
 Doctor of Philosophy: 118—the highest ever  
 Total: 986

## Students Stats

**94 percent** undergraduate student growth since 2005.

**21 percent** of undergraduate students participate in internships and co-ops.

Incoming students have an average ACT of **30.6** and an average GPA of **4.1**.

**21 percent** of undergraduates are female—female enrollment has increased 50 percent since 2005.

**33 percent growth** in PhD enrollment since 2012. It's now the **22nd largest** PhD program among public schools of engineering (30th overall) and one of the fastest growing.

**22 percent** female graduate student enrollment.

**10 percent** underrepresented minority graduate students.

## Faculty Profile

4 National Academy of Engineering members  
 11 UT-Oak Ridge National Laboratory Governor's Chairs  
 1 Distinguished Scientist  
 2 University Distinguished Professors

## Tenure and Tenure-Track Faculty

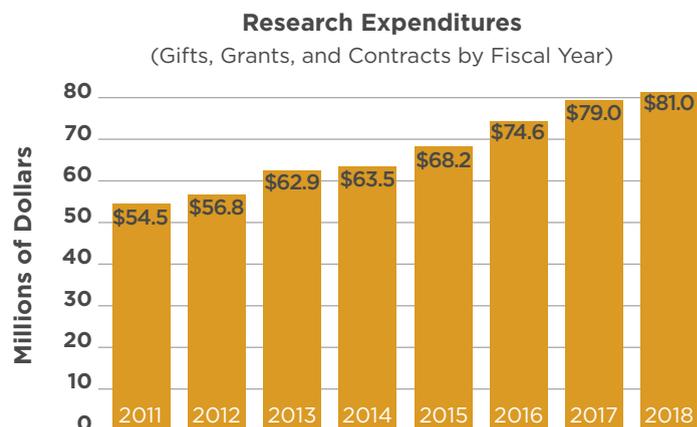
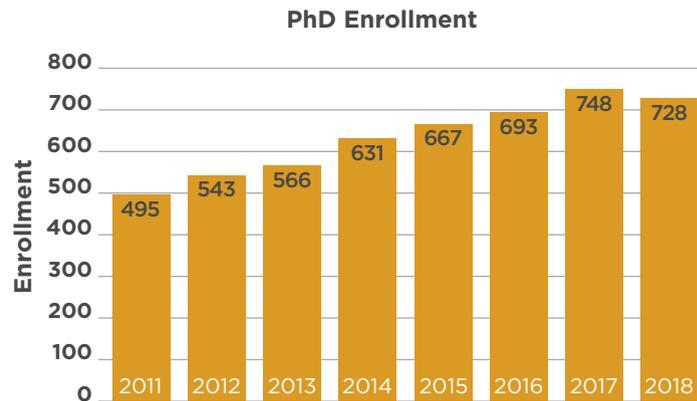
Includes *UT Space Institute*  
 80 Professors  
 42 Associate Professors  
 42 Assistant Professors

## Research

**\$81M** in annual research expenditures.

## Alumni

27,000+ alumni across all 50 states and 80 countries.



# FACULTY HIGHLIGHTS

## Babu Helps Navy Sail Smoothly

By David Goddard.

UT-ORNL Governor's Chair for Advanced Manufacturing **Suresh Babu** became the first from UT chosen to lead a Multidisciplinary University Research Initiative in the program's history and will lead a team focused on advanced manufactured alloys, an area of great importance to the US Navy, who backed his selection.

"To be leading the first team from UT picked to handle a MURI project is quite an honor," Babu said. "This research will directly impact national security."

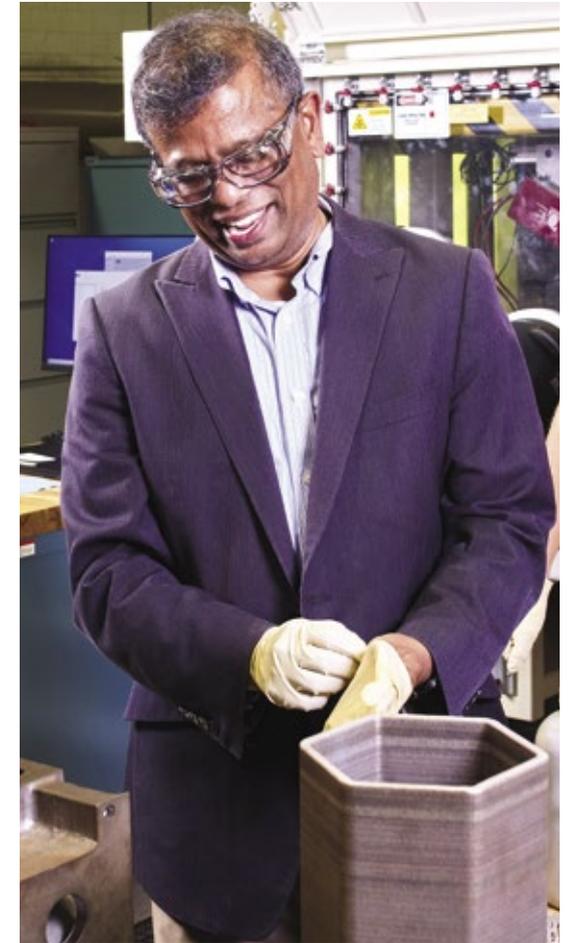
The team hopes to explore processes that can affect alloys and examine how physical properties at the small scales might differ from those at greater scales.

Materials Science and Engineering Associate Professor Hahn Choo and researchers from Virginia Tech, the Ohio State University, Iowa State University, the University of California-Santa Barbara, the Colorado School of Mines, the University of Sydney, and the University of New South Wales make up the rest of the team.

The US universities are sponsored by the Office of Naval Research, while the Australian Team is sponsored by the Australian Defence Science and Technology Organisation.

Babu said that this research will be crucial to all metal advanced manufacturing processes that use high energy deposition processes, all of which are relevant to US Department of Defense and manufacturing industries.

According to the Office of Naval Research, the award will total roughly \$1.5 million a year for three years, extendable up to five years.



## UT Leading Exascale Revolution

UT's Innovative Computing Laboratory is participating in six software development awards and one co-design center awards for the US Department of Energy's Exascale Computing Project aimed at developing systems at least 50 times faster than the nation's most powerful current supercomputers.

ICL, under the leadership of Distinguished Professor **Jack Dongarra**, will receive about \$3.3 million in funding the first year and more than \$3.4 million each of the next two years for an overall total of approximately \$10.2 million.

Three of the software development awards will fund projects conducted solely by ICL, while the other three will involve collaborations with DOE laboratories and other academic institutions.



# CO-OP INTERNSHIP OPPORTUNITIES FLOURISHING

By David Goddard.

The Office of Engineering Professional Practice helps students get an early jump on their future careers by matching them with paid intern and co-op opportunities in positions relevant to their studies.

Founded in 1926—making it one of the oldest programs of its kind and the second oldest in the South—the office has made several strong strides in recent years, greatly increasing both the number of students taking part as well as the number of employers interested in hiring UT students.

“Nearly 45 percent of our graduating seniors each year have participated in our program,” said Todd Reeves, director of the office.

A great illustration of the office’s expanding reach is the growth of the fall and spring engineering expos, the premier outreach events to personally connect students and employers.

Since 2010, the number of employers and students taking part at the expos has increased 145 percent and 275 percent, respectively, with each year setting new marks for both.

And it isn’t just that the office helps connect students with opportunities, but it ensures those positions are of a certain quality.

The average monthly income for students on assignment was almost \$3,200, with students collectively accounting for \$6 million in income in a normal year.

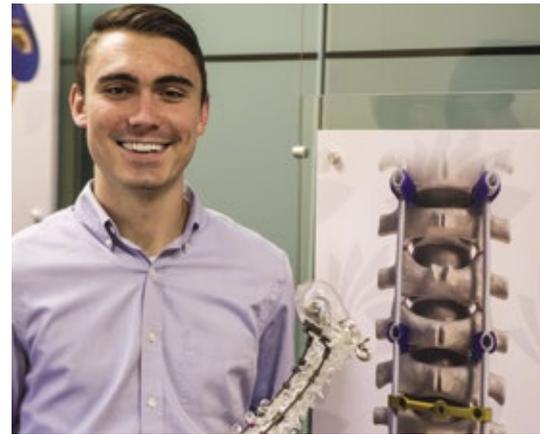
Beyond those initiatives, the office also enriches student experiences in other ways, such as the J. Michael Stone Engineering Professional Practice Leadership Development program and the John W. Prados Chemical Engineering Scholarship.

The Stone program was developed to help students taking part in co-op and intern experiences gain leadership and communications training, and to bring outside speakers to campus to talk to students.

Stone, a 1963 graduate in chemical engineering, supported it to increase student experiences that foster problem-solving skills and instill a sense of dedication to continue learning throughout their future careers.

He also created the Prados scholarship, given annually to chemical engineering students who have completed at least two co-op assignments and are pursuing a business minor or have met certain academic requirements.

Through these programs and others, the office provides a well-rounded, real-world experience for many of the college’s students, giving them a head start on future career paths.



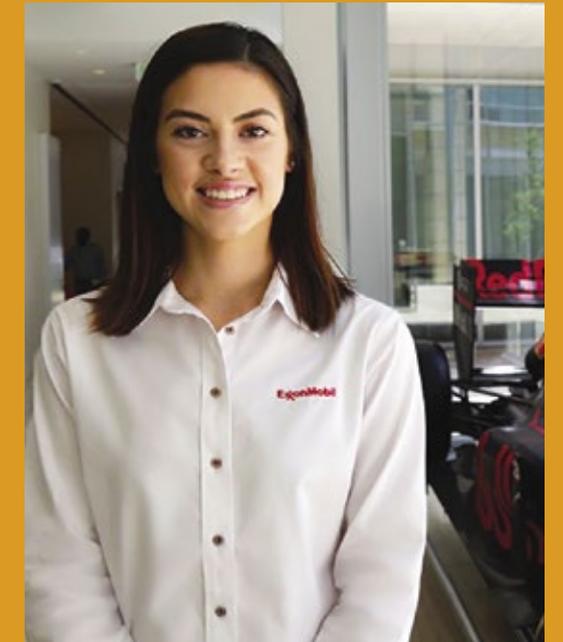
The Office of Engineering Professional Practice ambassadors

**Cassandra Finney** (ChemE, '18), who participated in four co-op experiences, recounts her experience:

I did my co-op at ExxonMobil, specifically their chemical company. They make a variety of chemicals products, mostly commodities. I had four terms with them: two in a manufacturing plant in Pensacola, Florida, and two in Houston, Texas, at their headquarters. In Pensacola, I was with the process engineering group and in Houston in was in global supply chain.

I decided to co-op because I really wanted to get work experience, and I loved working. I had an internship before co-opping and I fell in love with the work, so I wanted to do even more of it and get more experience. I would not have half of the skills I have today without having my co-op experience. I gained so many different hard and soft skills from working as a co-op.

Seeing real life applications of the things I study helped me to understand and perform better in class. The skills and experiences you gain during a co-op are priceless. It was my favorite thing that I did in college and the most beneficial by far. I didn't have to worry about finding a job after graduation; I accepted a full-time position with ExxonMobil before my senior year had even started.



# TOP STORIES



## NASA and Tickle Collaborate

NASA has partnered with UT to figure out how to utilize whatever materials happen to be available in space as base materials for 3D printing, be that moon dust or asteroid particles.

For that task, NASA is counting on MABE Assistant Professor and **Jeffrey Reinbolt** to come up with a way to use them effectively.

Since typical 3D printers don't work in space due to a lack of gravity, UT has developed an extrusion-based printer with a nozzle that can be aimed any direction and that uses a material that is 70 percent solid, keeping it from floating away in a micro-gravity environment.

## Record Number of CAREER Awards

The college had six faculty members honored with a prestigious National Science Foundation CAREER Award in 2018.

Assistant Professors Steven Abel, Siris Laursen, **Joshua Sangoro**, Tim Truster, Daniel Costinett, and Andy Sarles each received the honor, given by NSF in recognition of young faculty members making an impact in their field.

The college now has 13 faculty members so honored since 2016. Read about their research projects at [tiny.utk.edu/career18](http://tiny.utk.edu/career18)



## Stanfill Named First Edwards Assistant Dean

**Keith Stanfill** is the first Edwards Assistant Dean and Director of Integrated Engineering Design, a position created to look for collaborative opportunities that vertically integrate the work of freshmen through seniors as well as horizontally across the college's seven departments and beyond.

Stanfill will help enhance student experiences by collaborating with the directors of the Cook Grand Challenge Honors and Jerry E. Stoneking *engage* Engineering Fundamentals programs as well as industry partners and will help coordinate and distribute space in the design studio of the forthcoming New Engineering Complex.



## Faster than a Speeding Bullet

**John Schmisser** the H. H. Arnold Chair in Computational Fluid Dynamics and B. H. Goethert Professor at the UT Space Institute, is part of a team exploring the production of materials and structures for use in hypersonic aircraft travelling at more than five times the speed of sound, roughly 3,800 miles per hour at sea level.

Although that would mean travel from Tennessee to Tokyo in less than two hours, the heat generated by such speeds is a major holdup, one that Schmisser is focused on solving.

Purdue University and the University of Dayton Research Institute are the overall leaders of the \$9.8 million project for the US Air Force Research Laboratory.

Schmisser will be UT's systemwide leader on the research, which includes 15 faculty researchers from UTSI, UT Knoxville, and UT Chattanooga. The team will submit data it collects on heat and stresses to partners at Dayton, who will use it to help develop the structure and material design, meaning the results UT collects will be vital to the success of the project.

## EECS Department Renamed for Min H. Kao

Garmin co-founder and UT alumnus **Min H. Kao** and his wife donated \$12.5 million in 2005 towards the construction of the building that now bears his name and an additional \$5 million in endowments to enhance the department.

The UT Board of Trustees gave final approval to that agreement in 2008, which included a provision that the department housed in the building—electrical engineering and computer science—should also be named in his honor.

Kao requested that the naming not take place at the time, but the provision remained in effect until he so chose to make it public.

That time was 2018, and the department has now officially become the Min H. Kao Department of Electrical Engineering and Computer Science, the first time a department has undergone a naming.



# UT LEADING THE ADVANCED MANUFACTURING REVOLUTION

By David Goddard. Photography by Shawn Poynter.





Advanced manufacturing (AM) is the future, and UT and ORNL have teamed together to lead the way forward in this area of critical national importance through strategic hires, innovative initiatives, and world-class laboratories.

From Knoxville to Tullahoma, from carbon fibers to composites, researchers at those organizations are reshaping the way we think of manufacturing, taking the lead in projects covering everything from the future of flight to the security of the country.

“The Tickle College of Engineering, the College of Arts and Science, the College of Architecture and Design, the UT Space Institute, the UT Institute of Agriculture, and several directives at ORNL all bring a wealth of expertise to the table,” said Suresh Babu, UT-ORNL Governor’s Chair for Advanced Manufacturing. “We’ve come together, centered on a common focus of advanced manufacturing, composites, and additive manufacturing, and are recognized as leaders in the field.”



Moe Khaleel, ORNL’s associate laboratory director for Energy and Environmental Sciences, said that working closely with UT allows both to strengthen the region’s scientific leadership and to develop the next generation of researchers for the future of manufacturing.

The result bolstered not just the institutions, but the regional economy as well.

“Advanced manufacturing is growing in importance, not only to the University of Tennessee, but to the state and to the world at large,” said Stacey Patterson, UT’s vice president for research. “Supporting new initiatives in this field isn’t just an investment in the university; it’s an investment in our future.”

Marc Gibson, UT’s senior director for corporate engagement, pointed out several statistics that highlight the role AM is playing in shaping the state’s economy, noting that 350,000 Tennesseans are employed in some form of the field.



In fact, AM now accounts for more than 16 percent of the state’s GDP, accounting for more than \$55 billion in goods and services in 2017.

There are now three UT-ORNL Governor’s Chairs with a specific AM focus, but speak to any faculty involved in AM at UT, and the value placed on opening up opportunities for students quickly becomes clear.

AM projects and research touch every engineering department at UT, and, thanks to the world-class facilities at UT and ORNL, UT engineering students are getting hands-on experience with projects that directly impact society.

UT-ORNL Governor’s Chair for Advanced Composites Manufacturing Uday Vaidya has developed a cutting-edge research space that has opened up the world of AM to students of all levels, including 20 undergraduates and 15 graduate students.



In his group alone, students work on projects with partners ranging from small-scale manufacturers to industry giants like Volkswagen, often reinforcing their classwork by interning with those same companies.

The light-weighting of machinery and materials, the use of composites to help a home manufacturing company, aiding an auto manufacturer in developing a new air breaking system, and even teaming up with one business to improve the recycling of carbon fiber itself are all examples of UT’s role in AM.

*Left to right: UT-ORNL Governor’s Chair Suresh Babu (center) works with past UT students and current ORNL staff to observe the direct energy deposition process, which uses laser and metal powder to repair expensive components. / An ORNL staff member cleans parts necessary for the binder jet additive manufacturing process at MDF. / FCMF graduate student Jared Hughes retrieves a heated thermoplastic sheet from the infrared bed oven for transfer to the thermoformer seen in the background.*

# STUDENT COMMUNITY OUTREACH



Kincer Stallings explains the manufacturing process to the ISE student team (L-R): Carly Johnson, graduate student Rahul Ravikumar, Abigail Harr, Joseph Pettey, and Jake Fountaine. Third from left is Sabrina Kincer Stallings.

## ISE Students Help Out Local Business

Lean manufacturing—the process of streamlining production and stripping inefficiencies without sacrificing quality or output—has long been a specialty of the Department of Industrial Systems and Engineering.

ISE students took their knowledge to the community this year, helping transform the business end of

Krawlers Edge, a local company specializing in custom Ford Bronco chassis.

The team organized the supply system, storage stations, and revamped the inventory process, with the company recently gaining a profile in the *Knoxville News Sentinel* for the way its business has boomed.

## Printers for Patients

By David Goddard.

The college has teamed with East Tennessee Children’s Hospital (ETCH) to entertain and educate patients through the use of a portable 3D printer.

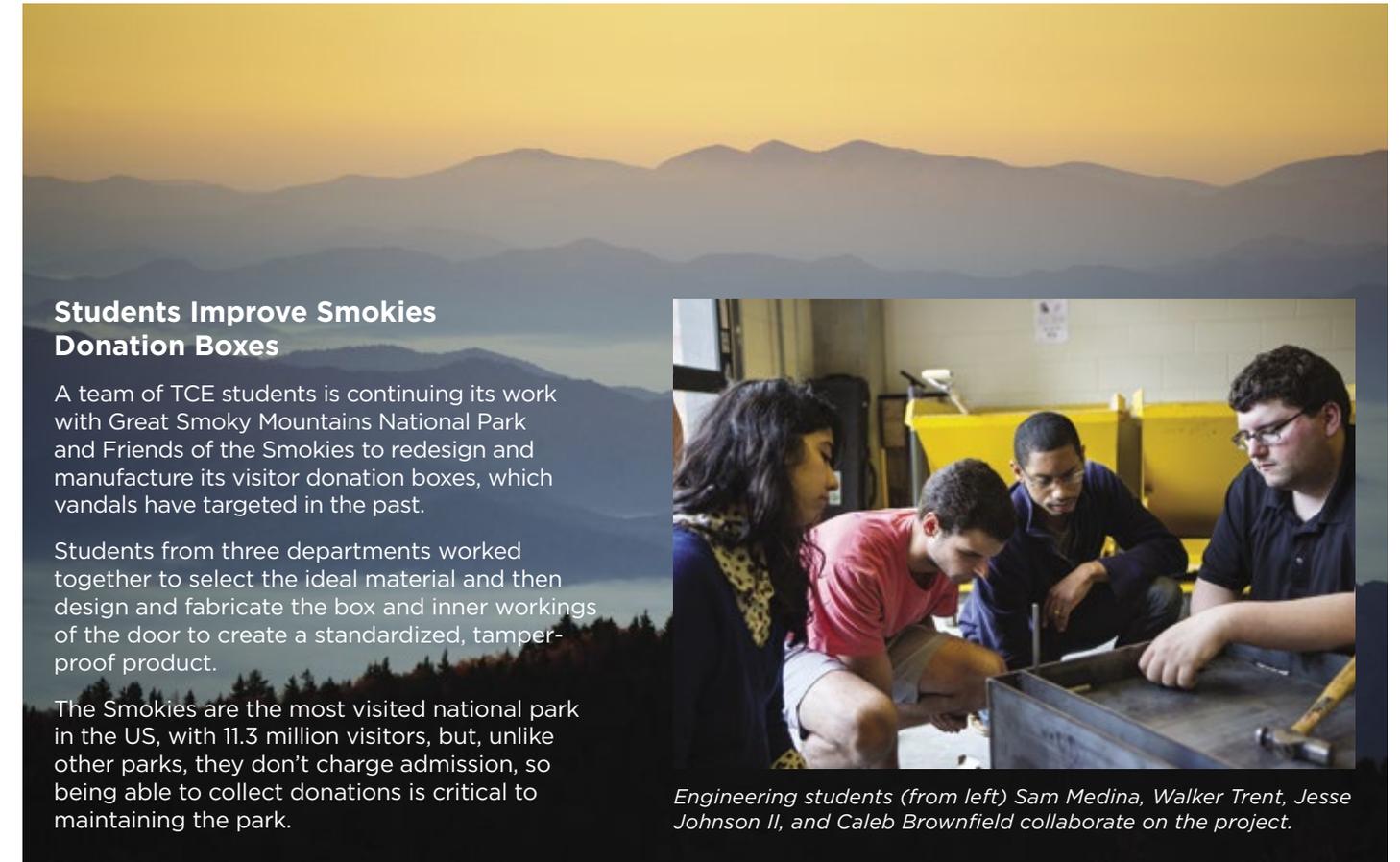
MSE graduate **Brandon Rowell** and senior lecturer Chris Wetteland came up with the idea of creating a mobile science lab to demonstrate science and engineering techniques to children.

“This project is perfect for the engineering student who wants to give back while practicing the skills they’re gaining in the class room and lab,” said MSE student Natalie Wieber. “It is so important to cultivate these skills, and what better way to do so than helping others.”

Wieber said that they hope to expand the project to UT Medical Center as well as at STEM nights hosted by local elementary schools.

She added that there are 19 team members hailing from mechanical engineering, biomedical engineering, and material science and engineering.

Rowell has volunteered at ETCH since high school and was part of its Childlife program, which is devoted to caring for and enhancing the lives of the children undergoing treatment. He connected the hospital and the college, bringing the program to life last fall.



## Students Improve Smokies Donation Boxes

A team of TCE students is continuing its work with Great Smoky Mountains National Park and Friends of the Smokies to redesign and manufacture its visitor donation boxes, which vandals have targeted in the past.

Students from three departments worked together to select the ideal material and then design and fabricate the box and inner workings of the door to create a standardized, tamper-proof product.

The Smokies are the most visited national park in the US, with 11.3 million visitors, but, unlike other parks, they don’t charge admission, so being able to collect donations is critical to maintaining the park.



Engineering students (from left) Sam Medina, Walker Trent, Jesse Johnson II, and Caleb Brownfield collaborate on the project.

# FACILITIES & INFRASTRUCTURE UPDATE



## UT Breaks Ground on Gateway to Engineering

By David Goddard. Rendering courtesy McCarty Holsaple McCarty in collaboration with SGJJR.

Ground broke on September 28 on UT's gateway to engineering—the newest engineering and research facility for the campus—a \$129 million, 228,000 square-foot complex that will house the Jerry E. Stoneking *engage* and Joseph C. and Judith E. Cook Grand Challenge Honors programs, the Min H. and Yu-Fan Kao Innovation and Collaboration Studio, the top-ranked Department of Nuclear Engineering, and additional laboratories for advanced research.

“This building will impact students from freshmen to doctoral candidates by opening up new opportunities for cross-disciplinary collaborations,” said Mark Dean, interim dean of the college. “The projects made possible by the new spaces are as limitless as one’s imagination.”

Other building components will include flexible laboratories that can be adapted for use across disciplines, convertible classrooms that can transform from one room to four, and informal areas for student collaboration and study.

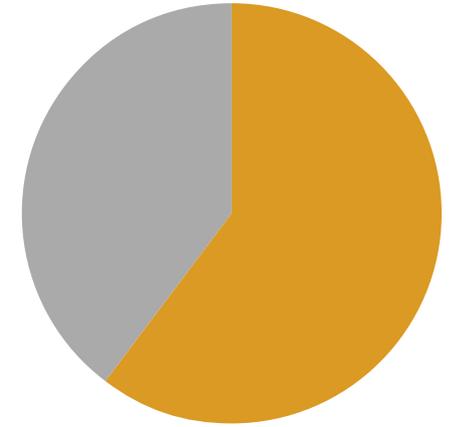
“A number of our alumni have created endowments associated with the naming of laboratories that will be in the building,” said Interim Chancellor Wayne T. Davis. “Those endowments will provide critical funds that can be used to support the educational activities occurring in the new complex.”

Follow along with the construction progress at [tiny.utk.edu/gateway](http://tiny.utk.edu/gateway).

# FINANCIAL UPDATE FISCAL YEAR 2017

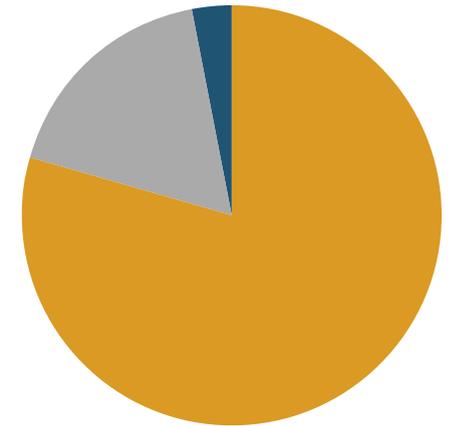
## Total Expenditures \$134 Million

Externally Funded Gifts, Grants & Contracts	\$81,169,384
Recurring & Nonrecurring State Funds	\$53,240,837



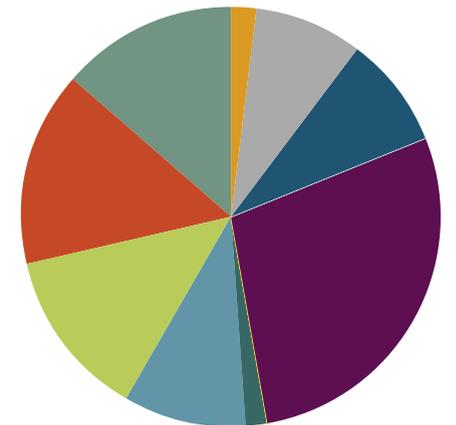
## Resources: Recurring & Nonrecurring State Funds \$53 Million

Salaries & Benefits	\$42,425,083
Miscellaneous Operating Expenses	\$9,313,923
Equipment & Software	\$1,501,831



## Gifts, Grants & Contracts by Department/Center \$81 Million

Administration	\$1,759,283
Chemical & Biomolecular Engineering	\$6,696,929
Civil & Environmental Engineering	\$6,936,464
Cook Grand Challenge Honors Program	\$120,439
Electrical Engineering & Computer Science	\$22,873,167
Engineering Fundamentals Division	\$150,357
Industrial & Systems Engineering	\$1,283,229
Materials Science & Engineering	\$7,684,920
Mechanical, Aerospace & Biomedical Engineering	\$10,502,468
Nuclear Engineering	\$12,298,492
Research Centers	\$10,863,637



# COLLEGE PROFILE

## Leadership Team

**Mark Dean**  
Interim Dean

**William Dunne**  
Associate Dean for  
Research and Facilities

**Masood Parang**  
Associate Dean for  
Academic and Student Affairs

**Paul Frymier**  
Associate Dean for  
Faculty Affairs and Engagement

**Keith Stanfill**  
Edwards Assistant Dean of  
Integrated Engineering Design

## Department Heads

**Chris Cox**  
Civil and  
Environmental Engineering

**J. Wesley Hines**  
Nuclear Engineering

**Veerle Keppens**  
Materials Science and Engineering

**Bamin Khomami**  
Chemical and  
Biomolecular Engineering

**John E. Kobza**  
Industrial and  
Systems Engineering

**Matthew M. Mench**  
Mechanical, Aerospace, and  
Biomedical Engineering

**Greg Peterson (interim)**  
Electrical Engineering and  
Computer Science

## Affiliated Heads & Directors

**Julie Carrier**  
Department Head, Biosystems  
Engineering and Soil Science  
in conjunction with the Herbert  
College of Agriculture

**Mark Whorton**  
Executive Director, University of  
Tennessee Space Institute

## Board of Advisors

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(Nashville School of Law)  
Director, Channel Marketing-NA  
Residential, Masonite International

**Terry K. Begley**  
BS/ChE '69, MS/EA '74  
(University of Tennessee)  
Vice President, Global Supply Chain,  
Chief Procurement Officer (retired),  
Eastman Chemical Company

**Barbie S. Bigelow**  
BS/ChE '82 (Tusculum College), MS/  
EECS '85 (University of Tennessee)  
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**Kathy J. Caldwell**  
BS/CE '84 (University of Tennessee)  
President, Caldwell Cook & Associates

**Angie Cannon**  
BS/CHE '81 (University of Tennessee)  
CEO, Cannon & Cannon Inc.

**Joseph (Joe) C. Cook Jr.**  
BS/IE '65 (University of Tennessee)  
Founder and Principal,  
Mountain Group Partners

**Mark K. Cox**  
BS/ChE '89, MBA '02  
(Northwestern University Kellogg  
School of Management)  
Senior Vice President, Chief  
Manufacturing and Engineering  
Officer, Eastman Chemical Company

**Bennett Croswell**  
BS/ME '79, MBA/Aviation  
(Embry Riddle Aeronautical University)  
President, Military Engines,  
Pratt & Whitney

**William L. Eversole**  
BS/EE '73, PhD  
(Southern Methodist University)  
CEO and President, Bandspeed Inc.

**Jim K. Flood**  
BS/CE '80 (University of Tennessee)  
Vice President, Artic/Eastern Canada,  
ExxonMobil Development Company

**Kimberly S. Greene**  
BS/ES '88, MS/BioM '90 (University of  
Alabama-Birmingham),  
MBA '96 (Samford)  
Executive Vice President and Chief  
Operating Officer, Southern Company

**Sharon S. Habibi**  
BS/Arch '75, MS/CE '77,  
EMBA '89 (University of Tennessee)  
Former CEO/President. Syscom  
Technologies Inc.

**John Hanula**  
BS/Arch '83, MS/CE '84,  
(University of Tennessee)  
Senior Vice President, MWH Los  
Angeles (now part of Stantec).

**Ralph D. Heath**  
BS/EE '70, MBA '75  
(University of Tennessee)  
Executive Vice President (retired),  
Lockheed Martin

**Pete Hoffman**  
BS/ME '82 (University of Tennessee-  
Martin), MS/ME '84 (University of  
Tennessee Space Institute), MS/MfgE  
(Washington University-St. Louis),  
Master of International Business  
(St. Louis University)  
Vice President, Intellectual Property  
Management, The Boeing Company

**John Howanitz**  
BS/Psychology/Criminal Justice '81  
(King's College, Wilkes-Barre)  
General Manager, Nuclear Security  
& Operations, Bechtel National Inc

**Bob Johnson**  
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## Accreditation

All engineering programs at the University of Tennessee, Knoxville, are accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>. The computer science program at the University of Tennessee, Knoxville, is accredited by the Computing Accreditation Commission of ABET, <http://www.abet.org>.

# DEVELOPMENT UPDATE



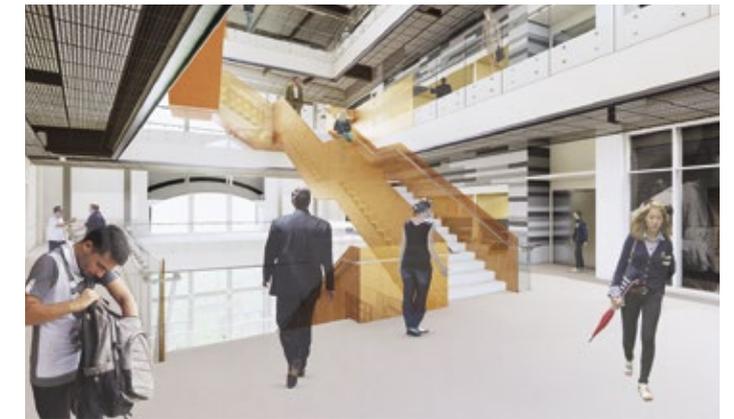
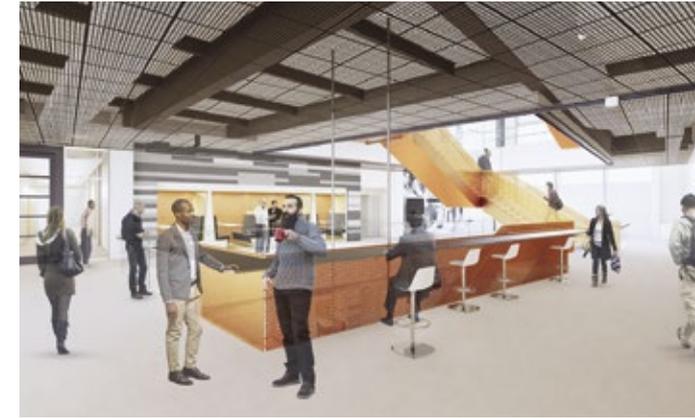
The upward trajectory of the Tickle College of Engineering continues! We had a really strong close to fiscal year 2018 in fundraising toward our campaign goal, and we are off to a great start this fiscal year. We now sit at \$188,605,129—94 percent toward our goal of \$200,000,000. Many thanks to you, our alumni and friends, who have donated your time and treasure to assure the continued success of our program by establishing scholarships, supporting faculty, and creating new and exciting spaces in which our students can learn to be great engineers. Now more than ever, we need your advocacy and support in your circles of influence. Together with your engagement, the Tickle College of Engineering will continue our relentless pursuit of excellence in engineering research and education.

In the past year the college has seen leadership changes as Dean Wayne Davis postponed retirement to become the university's interim chancellor. Also, this year saw the retirement of Engineering's executive director of development, Dorothy Bryson. Wayne and Dorothy made a highly productive duo and helped the college reach transformational new heights.

**We have also broken ground on the New Engineering Complex that will be home to the Min H. and Yu Fan Kao Innovation and Collaboration Studio and Department of Nuclear Engineering.** The new building will also serve as UT's Gateway to Engineering for incoming freshmen. The building will be divided into two wings that will be joined by the John and Ann Tickle Atrium which will run the entire height of the complex.

The Tickle College of Engineering continues to make great progress in educating the next generation of engineers to the betterment of our state, country, and our world. Thank you again for your steadfast support!

Brian Shupe  
Executive Director of Development



Renderings courtesy McCarty Holsaple McCarty in collaboration with SGJJR.



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All qualified applicants will receive equal consideration for employment and admission without regard to race, color, national origin, religion, sex, pregnancy, marital status, sexual orientation, gender identity, age, physical or mental disability, genetic information, veteran status, and parental status. In accordance with the requirements of Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990, the University of Tennessee affirmatively states that it does not discriminate on the basis of race, sex, or disability in its education programs and activities, and this policy extends to employment by the university. Inquiries and charges of violation of Title VI (race, color, and national origin), Title IX (sex), Section 504 (disability), the ADA (disability), the Age Discrimination in Employment Act (age), sexual orientation, or veteran status should be directed to the Office of Equity and Diversity, 1840 Melrose Avenue, Knoxville, TN 37996-3560, telephone 865-974-2498. Requests for accommodation of a disability should be directed to the ADA Coordinator at the Office of Equity and Diversity. A project of the Tickle College of Engineering. PAN E01-1301-013-010-19. Job 360464.