A MESSAGE FROM THE DEAN

Baylor’s School of Engineering and Computer Science (ECS) is a remarkable place to work. As an exciting hub of cross-disciplinary research, innovation, entrepreneurship and engineering education, ECS continues to operate under the Baylor mission to integrate academic excellence and Christian commitment within a caring community.

In my fifth year as Dean, I am not only encouraged by the rising quality of education that our dedicated faculty produce year after year, but also by the caliber of young men and women that our programs graduate each year. From students that design a capstone project to meet the needs of a disabled child to faculty that receive recognition as outstanding teachers, research professionals, and industry experts, ECS is ripe with accomplishments and pride.

This past year, our faculty have contributed to expanding research into such areas as human-computer interaction, wireless technology, big data, polymers, and motion-capture technology. Our research expenditures continue to grow, with ECS reaching over $1.75 million in annual research expenditures this year. Our research funding supports an ever-expanding graduate program. This fall, we are expecting to have over 30 Ph.D. students in our programs for the first time. Our faculty are helping Baylor in its goal to become a major research university.

In addition, the momentum has begun with a strategic committee that is focused on defining our classroom, laboratory, and maker space requirements to meet the needs of our growing technical programs. In August, our Department of Computer Science moved into the Hankamer Cashion Academic Center allowing for larger classrooms and additional lab and office space for both the engineering and computer science programs. As we continue to define our space and facility requirements, we will rely heavily on the support of our faithful alumni and donors.

Our donors have continued to give generously to ECS by funding scholarships, sponsoring student organizations, and participating in classroom presentations and on advisory boards. With a 22 percent female and a 33 percent minority student body, we continue to see positive changes in the diversity of our undergraduate and graduate programs, including a new doctoral program in Computer Science. The donor funding of scholarships has allowed ECS to compete with the scholarship offerings of some of our competitors. As a result, we have continued to see an increase in the mean SAT/ACT scores of incoming freshmen.

While it cannot capture everything that our faculty and students have accomplished, we hope that our 2015-2016 annual report gives you a snapshot of the great things that are happening at the School of Engineering and Computer Science and keeps your eyes on the future of our budding programs.
Members of the Board of Advocates voluntarily assist the School in executing its mission.
ROY SHERWIN
MECHANICAL ENGINEERING SENIOR

If you get the opportunity to work with Roy Sherwin, you will soon discover why “restorative” tops his list of strengths according to the StrengthsFinder 2.0 assessment. As a freshman, Roy discovered it was going to take more than natural ability to succeed at Baylor as a mechanical engineering major. After a rocky start, he soon became one of our most driven undergraduate students. His hard work impressed his cohorts and faculty alike.

“I quickly learned the value of self-discipline after a poor first semester,” said Roy. “I learned a lot about what I want in life, and those things require that I excel here at Baylor. I would learn soon afterwards that I am passionate about the study of difficult mechanical engineering problems.”

This passion for engineering and drive for success, undoubtedly, played a major role in Roy’s ability to transform Baylor’s American Society of Mechanical Engineers (ASME) chapter from a struggling student group into an active student organization with regular programming, increased visibility, and members that not only compete, but also win awards at ASME competitions.

“Everyone goes through times of turmoil, and I’ve learned attitude really is everything.” Ending his undergraduate career on the Dean’s List with an impressive résumé that boasts an internship with Samsung Austin Semiconductor and experience as a research assistant in the Composites Lab, we are confident that Roy will have no problem stepping into a career where he can successfully lead team projects by combining his passion for solving complicated problems with his drive to develop computational tools.

It is crucial that you persevere when you are having the most difficulty.”

We would be remiss to produce an annual report that only lists the financial performance and programmatic statistics of our School without looking at the true measure of our success: our students. Year after year, our faculty educates men and women of a higher caliber and academic accomplishment than the year before. This year is no different.
You might say that attending Baylor University is a family tradition for Brian Eddy. As the eleventh member of his family to attend Baylor, he knew that Baylor was his college of choice, but he had no idea how much he would grow and learn during his time on campus.

“One thing that I have definitely learned at Baylor is that I don’t know everything,” laughs Brian. “One of the most dangerous attitudes in international development is the belief that we know what is best for others. It is wrong for us to force our opinions and solutions on others; instead we need to work alongside each other to create a better future.”

Now a senior in the engineering program with a concentration in humanitarian engineering, Brian has found his calling by combining his math and science aptitude with his fundamental desire to help those who are less fortunate.

“Humanitarian engineering has taught me to look not only at what we can do and what we can build, but also how those things will affect other people,” says Brian. “I love studying humanitarian engineering because I get to learn about other cultures in addition to learning the fundamentals of engineering. I also get to learn how to take steps to help those who can’t help themselves and how I can use my skills and knowledge to do so.”

After working with different nonprofit organizations as an aquaponics engineer and volunteering on a two-week trip to Haiti where he worked on wells and solar panels, Brian hopes to use the technical education, leadership training, and community outreach focus he has gained at Baylor in international development and poverty alleviation.

“People often hold the belief that the humanities and sciences have very little in common, but I’ve come to learn that the same skill sets are required for both: an inquisitive mind, patience, perseverance, creativity, and most of all, a willingness to fail.”
ALEX SALO
COMPUTER SCIENCE GRADUATE STUDENT

Originally from Russia, Alex Salo earned his B.S. in Computer Science from Voronezh State University in Voronezh, Russia. After graduation, he started a local web studio before moving to Moscow and working on business process optimization for Liberty Grant while studying finance. With dreams of working his way up at Google, Alex decided to pursue a master’s degree in Computer Science at Baylor.

Under the mentorship of Dr. Erich Baker, professor of bioinformatics, Alex focused his research on applying machine learning algorithms to predict categorical drinking outcomes in non-human primates. Together, they collect deep phenotype data from numerous macaque studies and develop analysis methods to help identify behavioral and molecular characteristics of drinking.

"Using random forests models, Alex was able to identify several behavioral characteristics in this animal model that predicts which animal will go on to become a heavy drinker," explains Dr. Baker. “If we can translate these predictive characteristics to humans, then we might be able to provide early intervention to those at risk of heavy drinking.”

"I now realize that there is so much we don’t know. And that’s fine, as long as we keep tackling one important thing at a time," says Alex. “In the future, I hope to use computer science tools and mechanisms to solve health problems, as well as make simple day-to-day routine operations more efficient.”

When he is not in the computer lab solving complex problems, Alex can be found playing sports and enjoying the outdoors.

ALICIA MAGEE
ELECTRICAL AND COMPUTER ENGINEERING SENIOR

Alicia is a student that possesses an innate inner drive towards achievement. And as a speaker that leads seminars on time management, a peer leader in multiple students groups, an undergraduate research assistant, and a 4.0 Electrical and Computer Engineering major, she has a few achievements to claim as her own.

“I have always loved problem solving, and engineering is a field that has given me a chance to solve real problems,” says Alicia. “I chose electrical and computer engineering because computers and other electronic devices fascinate me. They’re small, very powerful, and present in almost every aspect of life. Knowing how to create and control them gives me an opportunity to make big advancements in almost any area of life. That excites me and motivates me to work.”

Despite her involvement in multiple extra-curricular activities such as The Baylor Bronze handbell ensemble, Brooks College Council, Engineers with a Mission, and undergraduate research on joint waveform and circuit optimization for reconfigurable radar, Alicia is already setting her sights on post-graduation goals.

“As I continue in my career, I want to use the skills I’ve developed and the knowledge I’ve gained in Baylor’s engineering program to meet real needs,” says Alicia. “Whether reaching individual students in a classroom, heading up an innovative, humanity-focused engineering team as a project manager, or writing software for equipment that makes life easier for those who face challenges in everyday life, I’m passionate about serving those around me.”

With Alicia at the helm, we foresee engineering solutions with global benefits that lead to healthy change for all of us.
“I have learned how to look at solving a problem in more than just a straightforward way.”

TANNER TRAPP
ELECTRICAL AND COMPUTER ENGINEERING GRADUATE STUDENT

Our graduate programs often draw some of the best and brightest students from our undergraduate programs. Tanner Trapp is one of those students. As a freshman at Baylor, Tanner rose to the top of the Dean’s List and never left, maintaining a 4.0 GPA throughout his undergraduate career. In 2015, he graduated summa cum laude with a B.S. in Electrical and Computer Engineering (ECE).

“I am fascinated by the day-to-day problems that can be solved through electrical and computer engineering,” said Tanner. “The more I learn, the more I realize how vast the ECE field is and how beneficial to society it can be.”

As a graduate student, Tanner exemplifies the mission of Baylor University to prepare students for worldwide leadership and service, combining with his natural aptitude for academic success, a passion for education, and the integration of his faith.

Tanner has focused his two-fold research on the area of Microwave Applied Metrology. Under the mentorship of Dr. Randall Jean, graduate program director and professor of electrical and computer engineering, he hopes to develop a microwave sensor for the detection of ice in the atmosphere and measure the accretion of ice on a metallic surface using microwave-sensing techniques. Tanner’s research aims to address the problem of aircraft engine icing. The first sensor will serve as an alert of present icing conditions, and the second sensor will provide a warning that ice is accreting inside the engine. Though research is still ongoing, he and Dr. Jean are confident in their ability to increase the safety of aviation.

“I have learned how to look at solving a problem in more than just a straightforward way. Rarely ever do I start working on something without finding out I need to completely change my perspective to get the job done,” he said. “This approach has proven to be valuable already, and will continue to benefit me in my career.”

After earning his master’s degree, Tanner hopes to work as a design engineer specializing in radio frequency and microwave systems. He also hopes to start a family with his new wife, Sara, spend time as a missionary in a foreign country, and ultimately bring glory to God.

SARA TOUDESHKI SEITZ
MECHANICAL ENGINEERING PH.D. CANDIDATE

Sara Toudehsi Seitz earned her B.S. in Chemical Engineering from Iran University of Science and Technology in 2009. She went on to earn a M.S. in Renewable Energy Engineering from the Institute of Materials and Energy and a M.S. in Mechanical and Energy Engineering for the University of North Texas. Now as a Ph.D. candidate in the Department of Mechanical Engineering, Sara is developing Planar Laser-Induced Fluorescence (PLIF) for the application of gas turbine cooling technology.

“As engineers, we develop new systems and functions that make life simpler. We answer the questions no one else knows to ask,” said Sara. “I get the chance to approach difficult tasks and apply my knowledge to better the world. Engineers, especially in the research and development field, get the joy of never experiencing the same day twice!”

As Sara continues to make a name for herself in the academic world, her long-term goal is to continue her research on gas turbine cooling in an R&D position at a well-established company.

“If I want to gain experience while furthering my abilities as an engineer,” she said, “I hope to become a household name in the engineering field one day.”

If the past is any indicator of the future, we have no doubt that Sara will indeed lead researchers to the forefront of advanced technology.
the field, and support for scholarly success. Of Bioinformatics, a network with other members with a better understanding is a student organization dedicated to helping build and foster common interests in Bioinformatics within the major and among like-minded students. ABB provides members with a better understanding of Bioinformatics, and a pathway for those involved in science, technology, engineering, and mathematics. The mission of the Chapter is to encourage positively impact the community. “The objective of the Chapter is to encourage those interested in the theme park industry. The organization forms student-led teams that bring together both technically innovative and artistically creative minds. In addition to regular creative-thinking challenges, the organization forms student-led teams that compete in the Disney ImagiNations design competition each year. Through monthly meetings and guest speakers, BTPED connects passionate students with each other and to opportunities in the amusement park industry.

ENGINEERS WITH A MISSION (EWBM) Engineers with a Mission (EWBM) is a unique Christian organization that envisions and mobilizes engineering students to serve the people of developing countries with their technical skills and appropriate technology projects and mission-oriented trips abroad. Membership is two-tiered: any engineering major may be a general member, but the technical and spiritual core is made up of the Project Implementation and Testing (PIT) Core, which utilizes a more selective application.

ETA KAPPA NU Elia Kappa Nu (HNK) is the national honor society for Electrical and Computer Engineering. The Baylor group is the Kappa Tau Chapter. Membership is by invitation and is based on a review of the student’s high academic record and character. Junior ECE majors in the upper fourth, and senior ECE students in the upper third, of their respective classes are eligible for consideration and election to HKN.

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) The Baylor University Chapter of IEEE is affiliated with the Institute of Electrical and Electronics Engineers, Inc. (IEEE), an international organization which is the world’s largest professional technical society. Through its local activities, the student branch fosters the professional growth of its members and promotes a closer relationship among students, faculty, and the engineering community. Baylor Student Branch membership is open to any student majoring in IEEE. Student membership in IEEE is open to students studying engineering, computer science, or a related field.

NATIONAL SOCIETY OF BLACK ENGINEERS (NSBE) Baylor University’s Chapter of the National Society of Black Engineers (NSBE) is available to all students majoring in engineering, science, or applied mathematics. The NSBE mission statement is “to increase the number of culturally responsible Black engineers who excel academically, succeed professionally and legislatively.” The objective of the Chapter is to encourage the professional career development of African American and Black students in engineering and other science and technology-related fields at Baylor University.

Pi Tau Sigma is an International Mechanical Engineering Honor Society. Its purpose is to establish and maintain a closer bond of fellowship among its members. Its goal is the mutual benefit of those interested in the study and profession of Mechanical Engineering (ME). Pi Tau Sigma’s core values are integrity, service, and leadership. Membership offers are extended each semester to junior and senior ME majors based on scholarship and character. Baylor’s Beta Chapter of Pi Tau Sigma serves to provide opportunities to build relationships with other Mechanical Engineers and to learn about different areas of the industry.

SOCIETY OF AUTOMOTIVE ENGINEERS (SAE) INTERNATIONAL SAE International (formerly the Society of Automotive Engineers) has more than 121,000 members — engineers, business executives, educators, and students from more than 97 countries — who share information and exchange ideas for advancing the engineering of mobility systems. SAE is your one-stop resource for standards development, events, and technical information and expertise used in designing, building, maintaining, and operating self-propelled vehicles for use on land, at sea, in air or space. The Baylor University College Chapter of SAE INTERNATIONAL is available to all students at Baylor who share a common interest in aerospace, automobiles, commercial vehicles, or motorsports. The organization provides opportunities to grow as an engineer and a professional through company tours, professional speakers, and student competitions. The Baylor Formula SAE team recently designed, built, tested, and competed in the Formula SAE cars to come.

SOCIETY OF PLASTIC ENGINEERS (SPE) The Society of Plastics Engineers is a multidisciplinary organization that strives to increase interest in the area of plastics engineering, plastics scientists, and professional careers in the industry. As part of our mission, the Baylor SPE Chapter will provide opportunities for students to learn about plastics engineering by inviting experts in the field to Baylor for symposia and organize industrial site visits to companies using plastics. SPE will also organize extracurricular education sessions with hands-on training with industrial and characterization equipment not available in the standard undergraduate curriculum. As part of our mission statement we will also provide Baylor students information about career opportunities in the field of plastics engineering.

SOCIETY OF WOMEN ENGINEERS (SWE) Baylor’s Student Section of the Society of Women Engineers is open to all engineering and computer science students, both male and female. The goals of the section are to provide education about the challenges facing female engineers; to create a sense of identity and community; to provide resources for women engineers; and to enhance leadership and professional skills. These goals are reviewed through mentoring relationships, presentations, field trips, and other activities.

THETA TAU Theta Tau is the oldest, largest, and foremost fraternity for engineers. Founded in 1915 by its 19 charter members, the Baylor chapter of Theta Tau is now a fully professional fraternity of outstanding men and women. Through the Theta Tau chapter, Theta Tau is organized throughout the United States in more than 150 chapters across the nation. The mission of Theta Tau is to promote professional, service, and brotherhood.

Upsilon Pi Epsilon Upsilon Pi Epsilon is an honorary computer science association that promotes high scholarship and original investigations in the branches of computer science. Membership in the chapter is composed of individuals whose academic achievements and personal or professional abilities deserve recognition. The chapter inducts members twice each year and assists students in the professional development.
The Office of Corporate and Foundation Relations (CFR) bridges the corporate and academic worlds, developing partnerships that align business objectives with Baylor University’s strategic initiatives. As a single University entry point, we facilitate access to knowledgeable faculty and researchers, talented students, high-tech facilities, market-ready technologies, and opportunities for philanthropic support of transformational programs. Baylor’s corporate and foundation relations’ strategy will foster long-term, mutually beneficial partnerships that advance simultaneously the university and corporation’s goals and objectives. The focus of Baylor’s engagement has shifted from transaction to relationship. Identifying, establishing and maintaining long-term, intentional relationships with corporations is essential in support of Baylor’s strategic vision, Pro Futuris.

With an inclusive vision of corporate interactions at Baylor, Corporate and Foundation Relations is well positioned to assist you in identifying partnership opportunities by:

- Matching your business’ strategic goals with University initiatives
- Identifying robust opportunities for maximizing impact
- Articulating the value proposition the University offers
- Facilitating worthwhile, effective interactions between campus leadership and your company representatives
- Communicating attainment of collaborative goals and return on philanthropic investment

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Gift Breakdown by Fund

- Foundation
- Corporate
- Matching Gifts
- Individual
- Other

Gift Breakdown by Type

- $783,952 Corporate
- $200,000 Foundation
- $127,291 Individual
- $71,100 Other

Annual Giving Statistics
Gifts > $10,000

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FY2016 Annual Giving
$159,342.71

Total Number of Donors
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