2017–2018

ANNUAL REPORT

ENGINEERING
PROFESSIONAL PRACTICE

OUR IMPACT

Helping students add paid, educationally relevant work experience to their education is important at the University of Tennessee. As we move through 2018, we continue to see unprecedented growth in student and employer participation and now the expansion of our program beyond traditional co-ops and internships into other areas of engineering student enrichment. Our program, which helps students add experience to their education, has been in existence since 1926. It's the second oldest program of its kind in the south and one of the nation's oldest. We are dedicated to helping engineering students find educationally relevant paid co-op and internship positions with one of our hundreds of participating employers.

KEY ACCOMPLISHMENTS

- The fall 2017 Engineering Expo welcomed a record 90 employers and 838 students.
- The spring 2018 Engineering Expo was our largest employer-attended spring event in our history, with 80 employers and 661 students attending.
- We continue to see over 1,200 students, faculty, and staff attend the fall Engineering Cookout each year, making it one of the largest annual engineering events at UT.
- In March 2017 we held the sixth annual Engineering Professional Practice Spring Banquet.
- In Academic Year 2017, over 40 percent of graduating engineering seniors completed at least one co-op or internship assignment while at UT. Over the past eight years of senior classes, on average, 40 percent of those graduating have participated in at least one assignment.

On the cover: Abe Perryman, mechanical engineering senior, on co-op assignment with ChoiceSpine during the summer 2017 semester.

J. Michael Stone Engineering Professional Practice Leadership Development Program

This program is specifically for engineering students who obtain co-op and internship assignments through our program. While on assignment, students are provided books on leadership development and communication skills and are encouraged to apply the skills learned during their assignments. The program also enables us to bring speakers to campus for additional leadership development opportunities.

These leadership skills go hand-in-hand with the academic knowledge our students gain through their coursework and add to the experiential learning process, combining problem-solving and lifelong learning skills with critical reflection.

The program began in 2014 thanks to the generosity of alumnus J. Michael Stone ('63).

> **"I want to be able to instill in you a strong and enduring drive to acquire knowledge throughout your life, so you will be able to fully achieve your potential."**
>
> *—J. Michael Stone*

John W. Prados Chemical Engineering Scholarship

L–R: Graduating John W. Prados Chemical Engineering Co-op Scholarship recipients Evan Boone (second from left) and Grayson Jones (second from right) joined Michael Stone, John W. Prados, and Interim Chancellor Wayne Davis.

With an annual stipend of $5,000 each for up to five students, the John W. Prados Chemical Engineering Scholarship offers an opportunity for students who excel to be recognized in a financial way. To be considered, a student must be in the undergraduate chemical engineering program, have completed two of three co-op assignments, and be enrolled in business courses designated for the business minor. In addition to the one-year stipend, Prados Scholars each receive a number of books upon graduation to help them begin building their professional library.

The scholarship is named for Professor Emeritus, John W. Prados, who has been recognized for excellence at the university where he served for more than fifty years and by organizations around the nation.

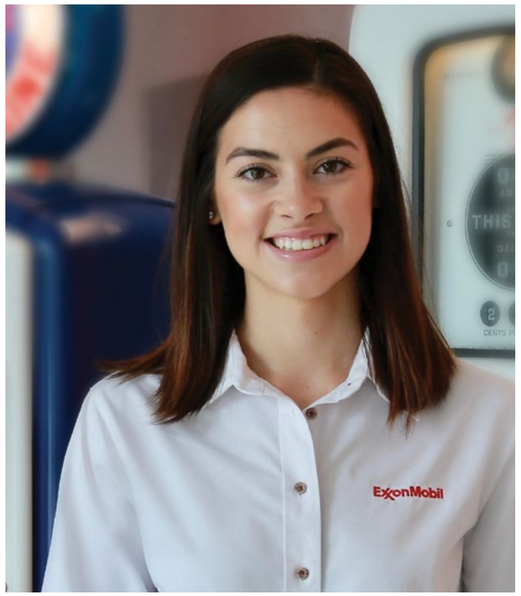
List of all-time Prados Scholarship recipients:

Mark Edward May, 2009
Angel M. (Vogel) Minor, 2009
Patrick Thomas Bowland, 2010
Jacob Miller Buchkovich, 2010
Amanda (Mathews) Fenyves, 2010
Shelley E. Parker, 2010
Matthew R. Melton, 2012
Nichols Joseph Ponzio, 2012
Brian Kenneth Yount, 2012
Rebekah K. Patton, 2013
Hanna Elizabeth Haines, 2014
Zachary P. Shupe, 2014
Jonathan A. Jones, 2015
Brittany (Rogers) Thompson, 2015
Travis W. Keever, 2016
Derek Watkins, 2017
Evan Boone, 2018
Grayson Jones, 2018

Program Champion Award

This award was created to recognize primary Tickle College of Engineering faculty, staff, and alumni who have supported and worked on behalf of the professional practice program to promote and encourage student participation. The inaugural class of recipients were:
Wayne Davis, interim chancellor (then-dean of engineering)
Dorothy Bryson, former executive director of development for the college
J. Michael Stone, alumnus, (BS/ChemE, '63)

STUDENT SPOTLIGHTS



Cassandra Finney (BS/ChemE '18)

Major: Chemical Engineering
Company: ExxonMobil

I did my co-op at ExxonMobil; specifically their chemical company. They make a variety of chemicals products, mostly commodities. I have had four terms with them; two in Pensacola, Florida, in a manufacturing plant, and two in Houston, Texas, at headquarters. In Pensacola, I was with the process engineering group and in Houston I 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-oping 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 have gained so many different hard and soft skills from working as a co-op. Seeing real-life applications of the things I study also helps me to understand and perform better in class as well.

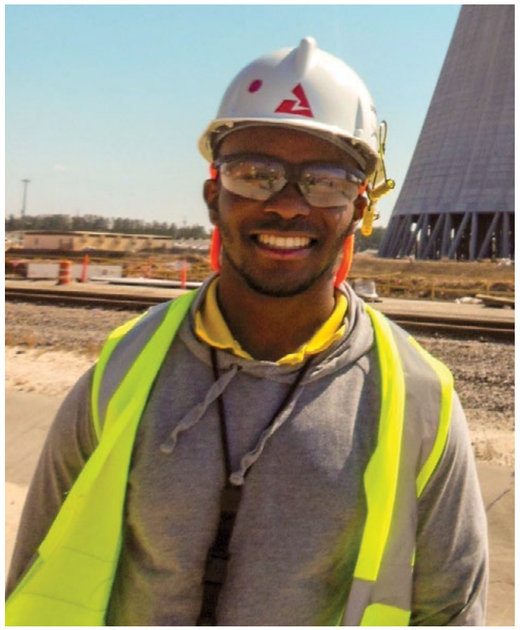
The skills and experiences you gain during a co-op are priceless; it has been my favorite thing that I've done in college and the most beneficial by far. Coming into my senior year, I was not worried at all about finding a job after graduation as I accepted a full-time position with ExxonMobil.

Xavier Lee

Major: Chemical Engineering
Company: Southern Company

I had the opportunity to co-op with Southern Nuclear, a part of Southern Company and a source of the production of electricity for Georgia. While at Plant Vogtle in Waynesboro, Georgia, I took on several projects including fire plan development, subcontract reviews, program development, and a plethora of minor projects. During my three rotations I was in systems and program engineering.

I decided to co-op because I felt that it would assist me in understanding not only how the engineering work force is structured, but if my engineering discipline was the correct field for me. The opportunity to co-op opened my eyes to the multitude of possibilities within my career. During my third rotation, I was asked to assist with subcontracts for the site. This project allowed me to see and understand the business side of nuclear energy and to make decisions from a big picture point of view outside of engineering. Along with my business administration minor, I felt that this project developed me beyond my education. It has helped improve my time-management, communication, and presentation skills. From a professional standpoint, co-oping has prepared me for the office culture as well as the corporate culture.



Patrick Jung

Major: Mechanical Engineering
Company: NASA Langley Research Center

Jung worked in the Advanced Measurement and Data Systems branch of the Research Directorate at NASA Langley Research Center. His main task was to parameterize the design of a strain gage for simple and immediate visualization of design specification changes.

"I liked that there were open lectures every week of the internship that provided a glimpse of the many areas of interest at the center. There was also a class focusing on the basics of Finite Element Analysis as well as many tours of the state-of-the-art facilities at the center."

Madeline Burrell

Major: Nuclear Engineering
Company: Southern Company

Burrell worked as a nuclear steam supply systems engineer. She gained hands-on experience by learning the mechanics of safe operation and contributing to the creation of electrical energy. She oversaw the procurement of various system components, led safety briefings, and observed a nuclear fuel exchange during an outage.

"Networking with professionals in the field, developing my communication and leadership skills, and being able to effectively coordinate various project with peers, supervisors, and engineers was a priceless experience. My co-op has allowed me to bring the classroom outside of the halls of my university. I learned through tactile application, then subsequently studied the method and rationale of what I have accomplished to create a versatile and well-rounded educational experience."

Wright Smith

Major: Mechanical Engineering
Company: Shaw Industries

The first company I worked for was Shaw Industries. Their primary product is carpet and other types of industrial and resetting flooring. For Shaw, I worked in two separate cities in Georgia: Ringgold and Chickamauga. I completed one rotation in each location, with my primary project being devoted to helping improve the overall work environment.

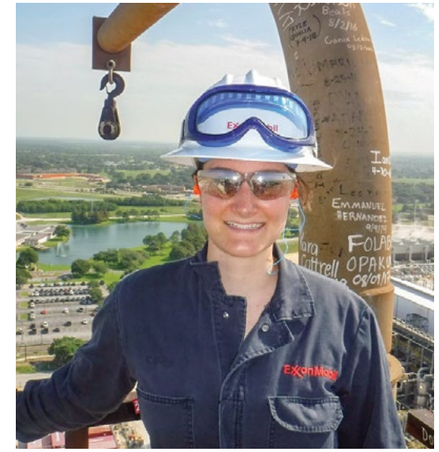
I elected to co-op because I wanted to dive deeper with the company I went to work for. For me, the co-op experience has helped me to better understand what engineers in the field are really tasked with accomplishing. Professionally co-oping has shown me that communication with my co-workers is an absolute necessity and that I should strive to get to know them as soon as I reasonably can. Academically, participating in the co-op program has given me time away from school to focus on what life could be like after school, and this future look has been excellent motivation for my studies.

Simon Boka

Major: Computer Engineering
Company: OSIsoft LLC

Boka worked specifically with the interface testing team. His main assignment was to perform tests on different interfaces to automatically check a specific interface feature.

"The most valuable benefit I received during my co-op is that I have a better view of what to expect when I get out of school. Also, I learned to refine academics skills to fit the company standards and I am more open to the spirit of teamwork."



Discover how you can help shape the engineers of the future.

Our co-op and internship students can be a tremendous advantage to you and your organization.

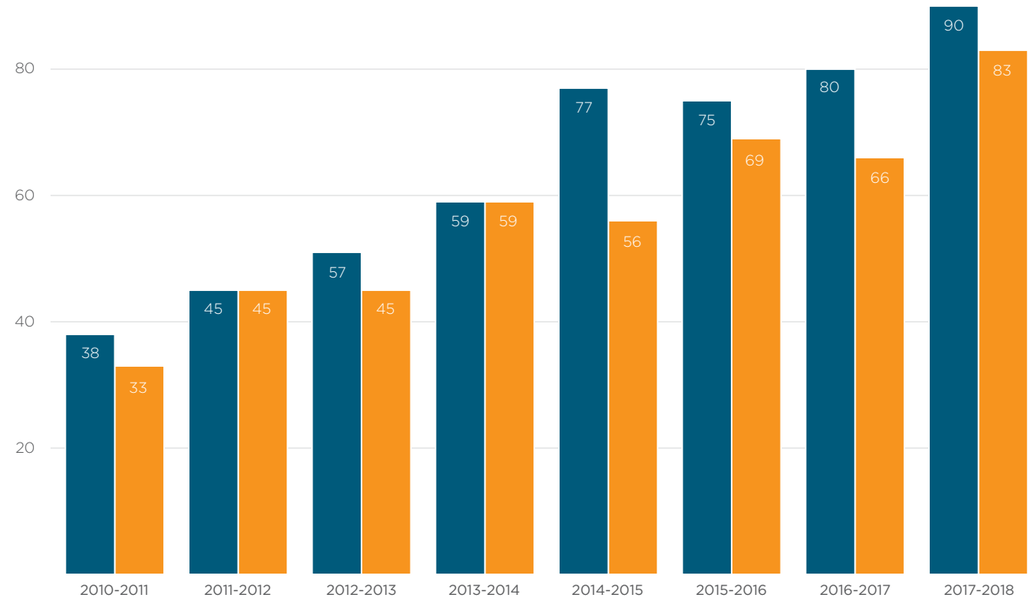
The primary and most effective way employers typically recruit students is by attending our Spring and Fall Engineering Expos. A secondary way to recruit is to simply post an open position within our online system and then set up an interview day to meet interested students.

Getting involved with our office enables your organization to engage UT engineering students who are bright, energetic, and future oriented early in their academic program.

Get started today:
Visit tiny.utk.edu/coop

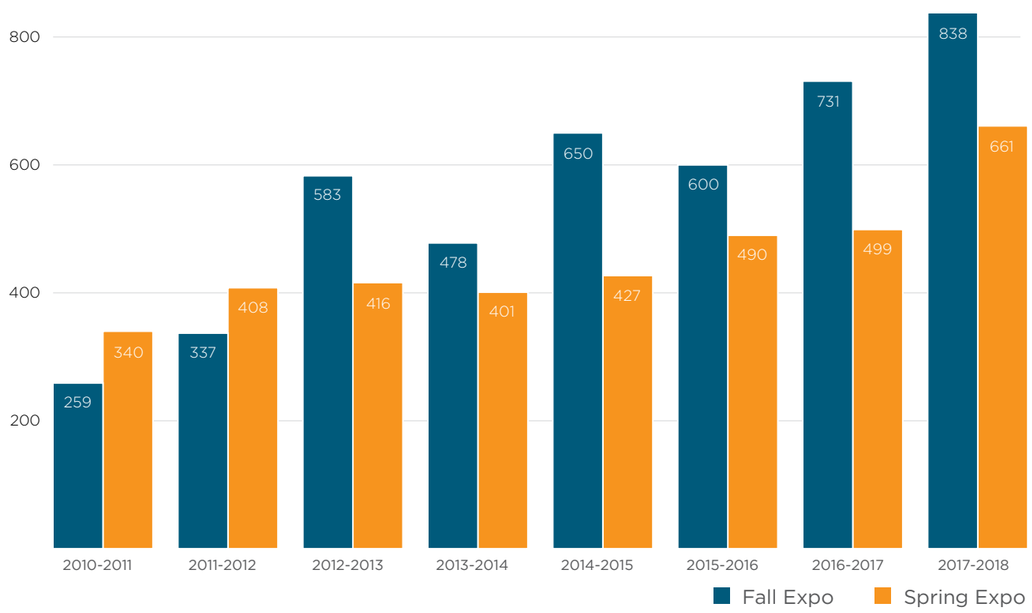
Engineering Expo Employer Attendance is on the Rise

Our program has experienced consistent growth in Engineering Expo employer attendance since AY2010–11. After record-setting employer attendances in fall 2014 and spring 2016, our employer attendance in fall 2017 and spring 2018 set new records for employer participation.



Engineering Expo Student Attendance is Strong

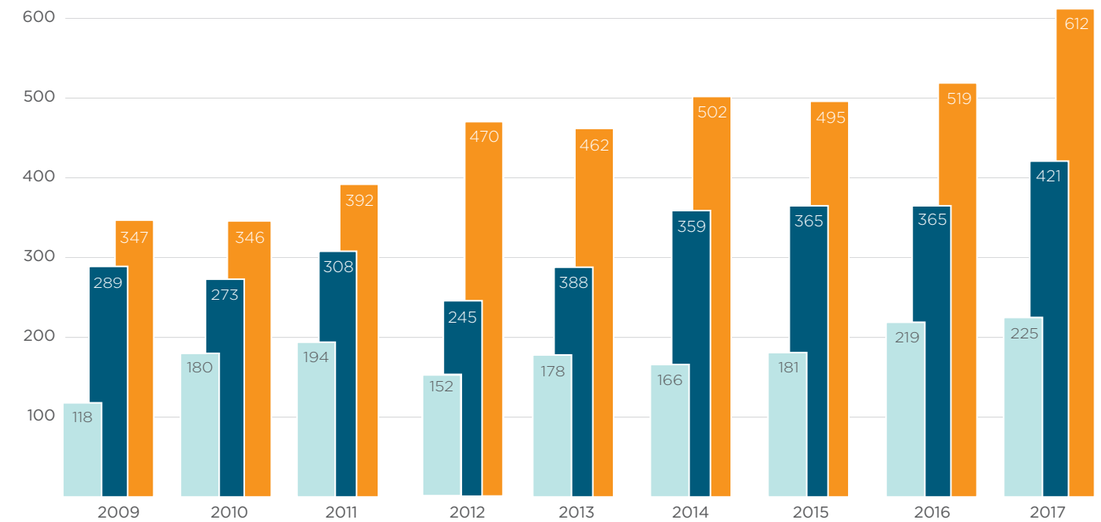
Student attendance at the fall 2017 and spring 2018 expos have also set new records. The student attendance increase in fall 2017 represents a nearly 15 percent year-over-year increase over fall 2016, while the increase in student attendance in spring 2018 was a 32 percent year-over-year increase.



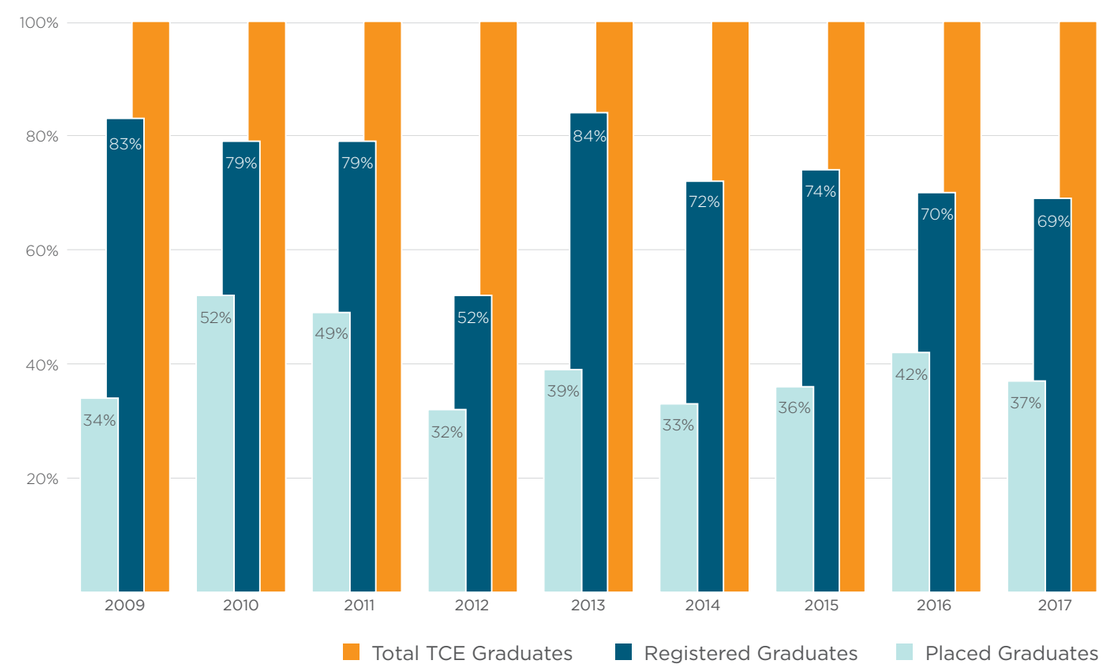
Graduating Students Who Participated in the Program

Our office continues to see strong interest and high participation levels from engineering students. In total, the number of placed TCE graduates participating in co-ops and internships averaged 40 percent from AY2009 through AY2017. Additionally, since 2009, at least 75 percent of graduating seniors have, on average, at least registered with our program.

Undergraduates Graduating in the Academic Year Participating (Totals)



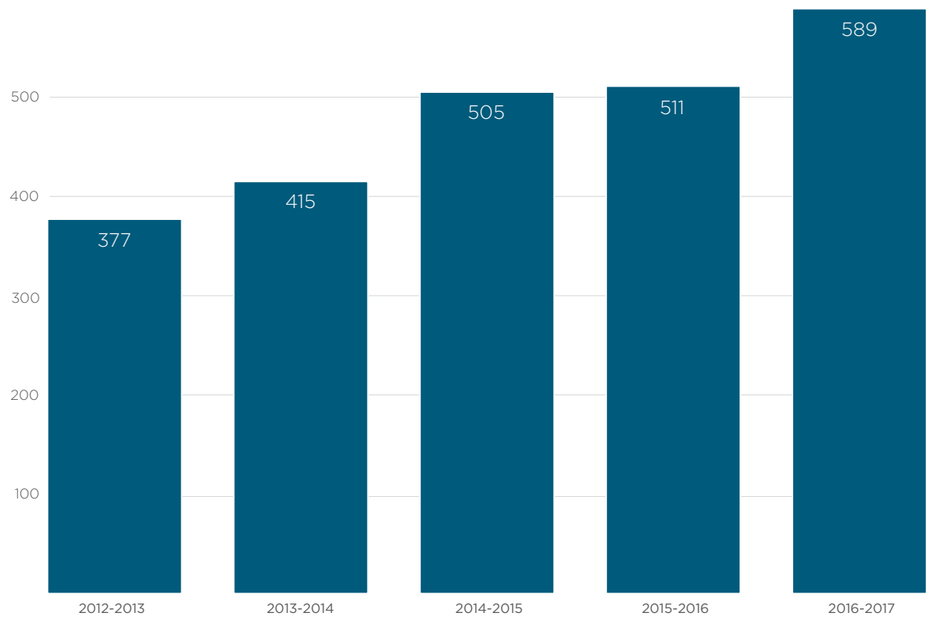
Undergraduates Graduating in the Academic Year Participating (Percentages)



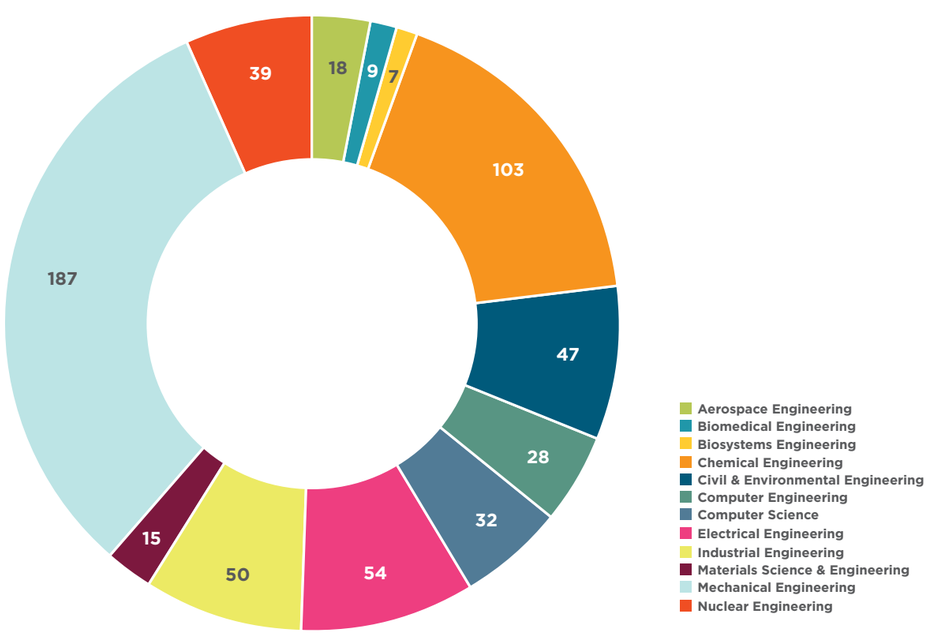
Student Placements Continue to Increase

The number of students placed on a co-op or internship assignment continue to increase each year. We have seen four consecutive years of increased student placements.

Total Engineering Student Placements



Academic Year 2016–2017 Placements

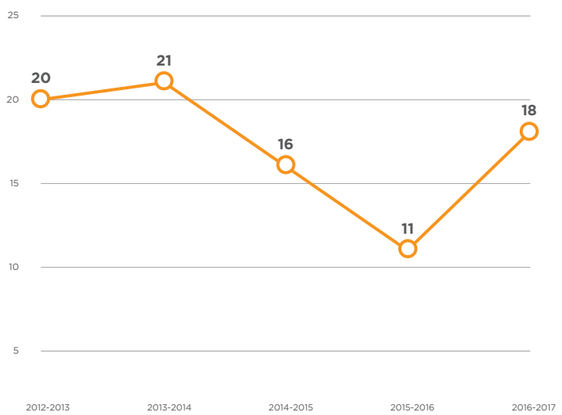


Placement of Engineering Majors by Discipline and Year for the Last Five Academic Years

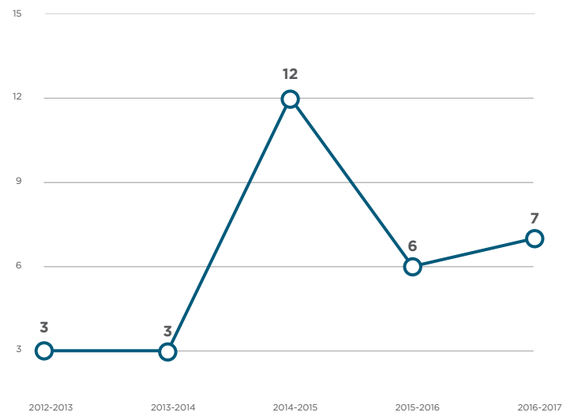
	2012–2013	2013–2014	2014–2015	2015–2016	2016–2017
Aerospace Engineering	20	21	16	11	18
Biomedical Engineering	6	10	4	13	9
Biosystems Engineering	3	3	12	6	7
Chemical Engineering	38	61	78	87	103
Civil & Environmental Engineering	26	31	32	44	47
Computer Engineering	7	12	19	20	28
Computer Science	8	13	29	30	32
Electrical Engineering	43	44	51	37	54
Industrial Engineering	28	31	58	62	50
Materials Science & Engineering	10	12	16	19	15
Mechanical Engineering	161	153	170	155	187
Nuclear Engineering	27	24	20	27	39
Total	**377**	**415**	**505**	**511**	**589**

Placement of Engineering Majors by Discipline

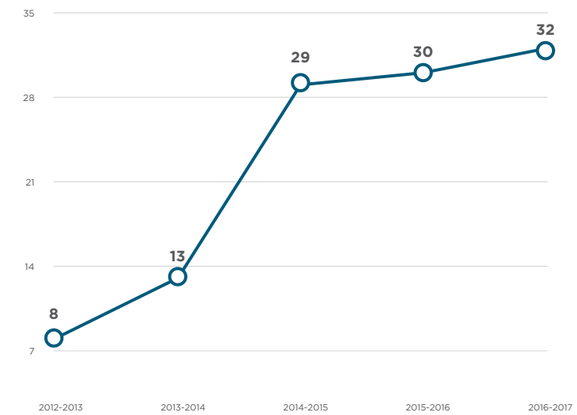
Aerospace Engineering



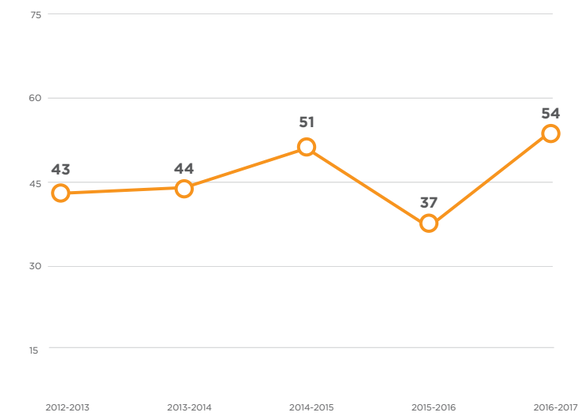
Biosystems Engineering



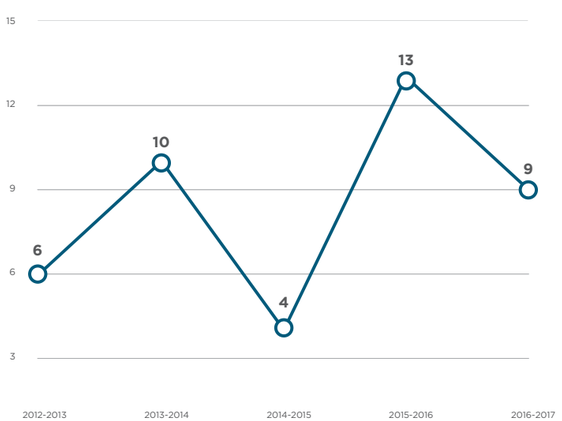
Computer Science



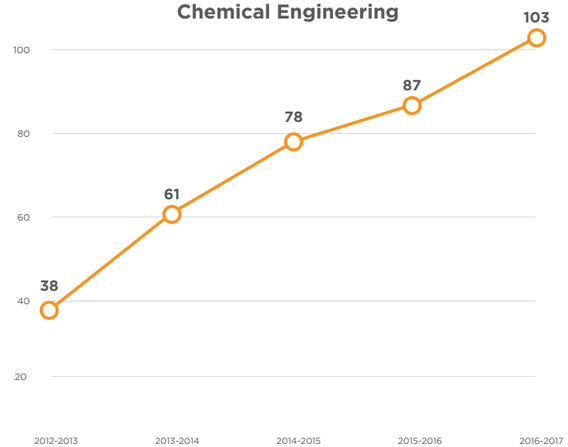
Electrical Engineering



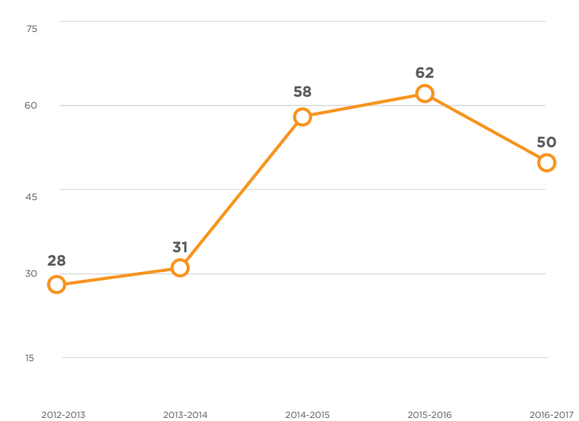
Biomedical Engineering



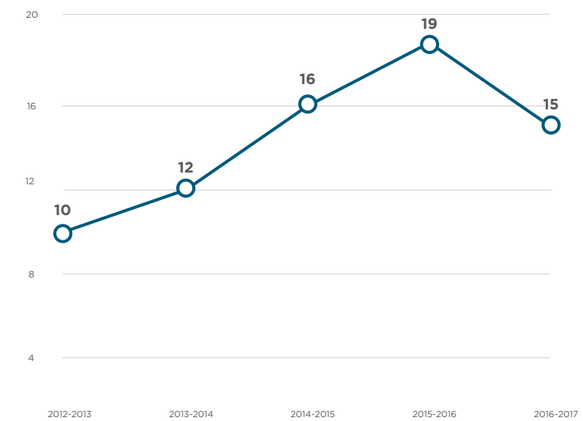
Chemical Engineering



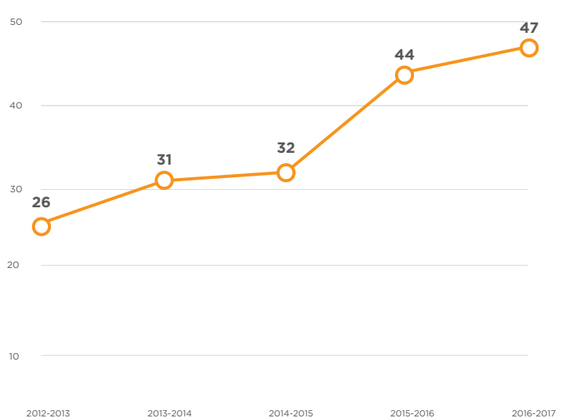
Industrial & Systems Engineering



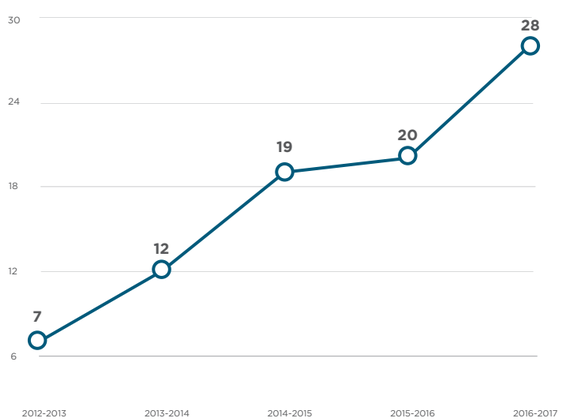
Materials Science & Engineering



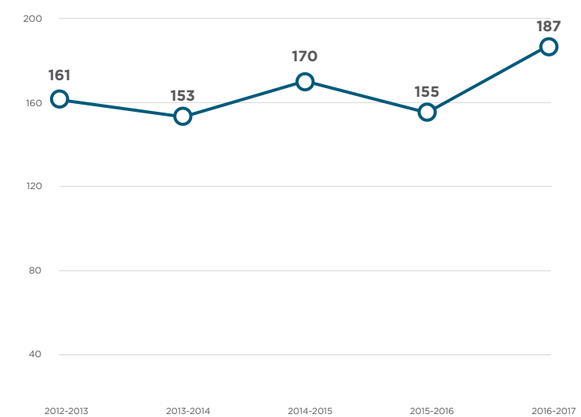
Civil & Environmental Engineering



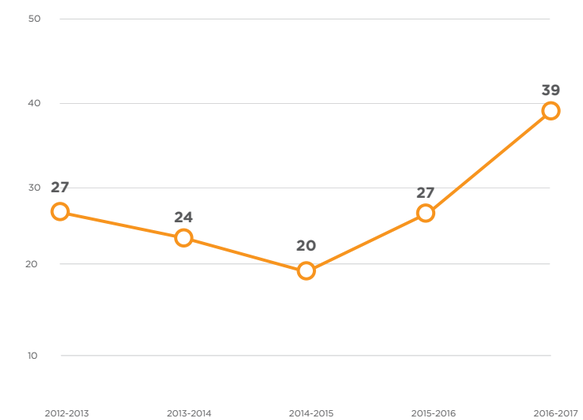
Computer Engineering



Mechanical Engineering

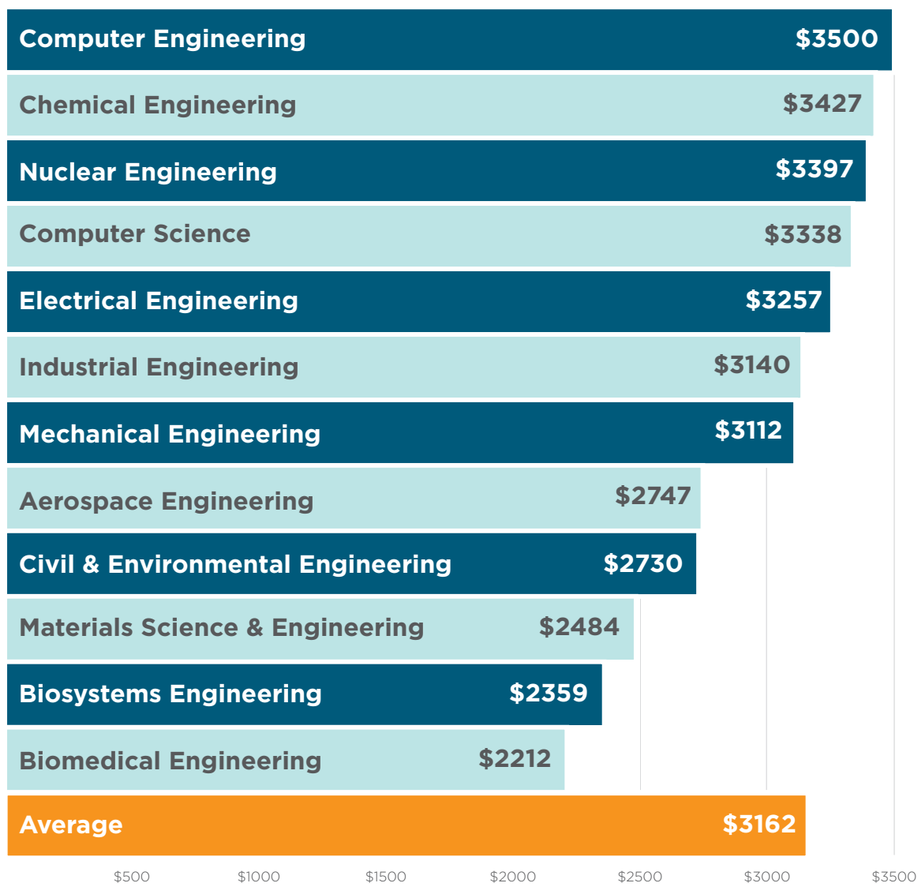


Nuclear Engineering



Student Co-op/Internship Placement Monthly Salary: Fall 2016–Summer 2017

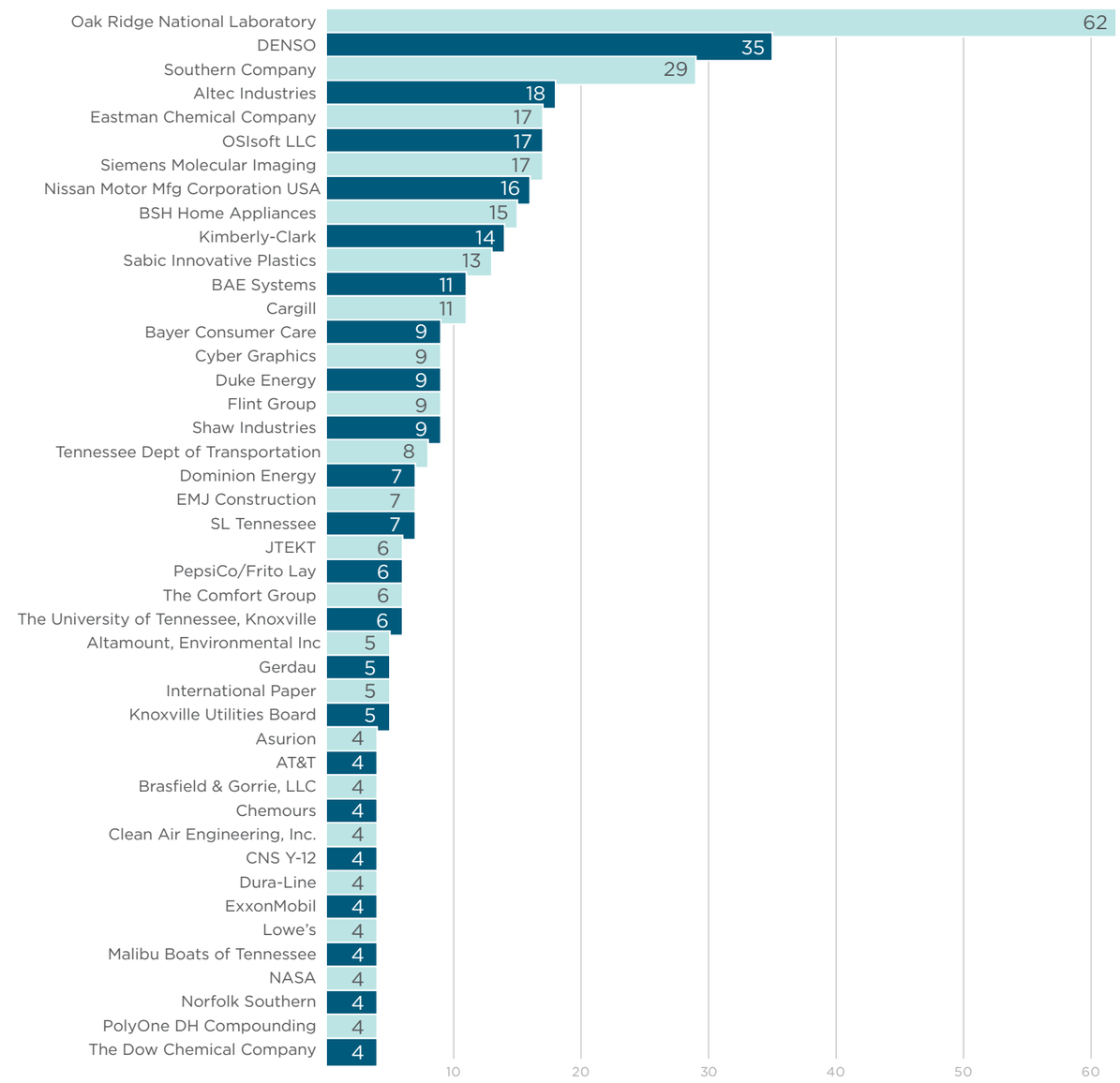
Students continue to earn significant amounts of money during their co-op and internship experiences. In a typical year, engineering students will collectively earn well over $6 million. This figure shows that the Engineering Professional Practice program is not only educationally relevant to students, but also financially relevant: Students are able to use a portion of their earnings to assist with housing, books, and tuition during the regular semester when they return to campus, making the program also financially relevant to both the college and the university.



Top Employers

Oak Ridge National Laboratory continues to place the most students, with DENSO, Altec, Southern Company, and Eastman consistently in our top five for the most recent year and the past ten years.

Top Employer Placements: Academic Year 2016–17



TICKLE
COLLEGE OF ENGINEERING

ENGINEERING PROFESSIONAL PRACTICE

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big orange. big ideas.

Tyler Czap, senior in mechanical engineering, inspecting vehicles during his co-op at Nissan Motor Manufacturing.