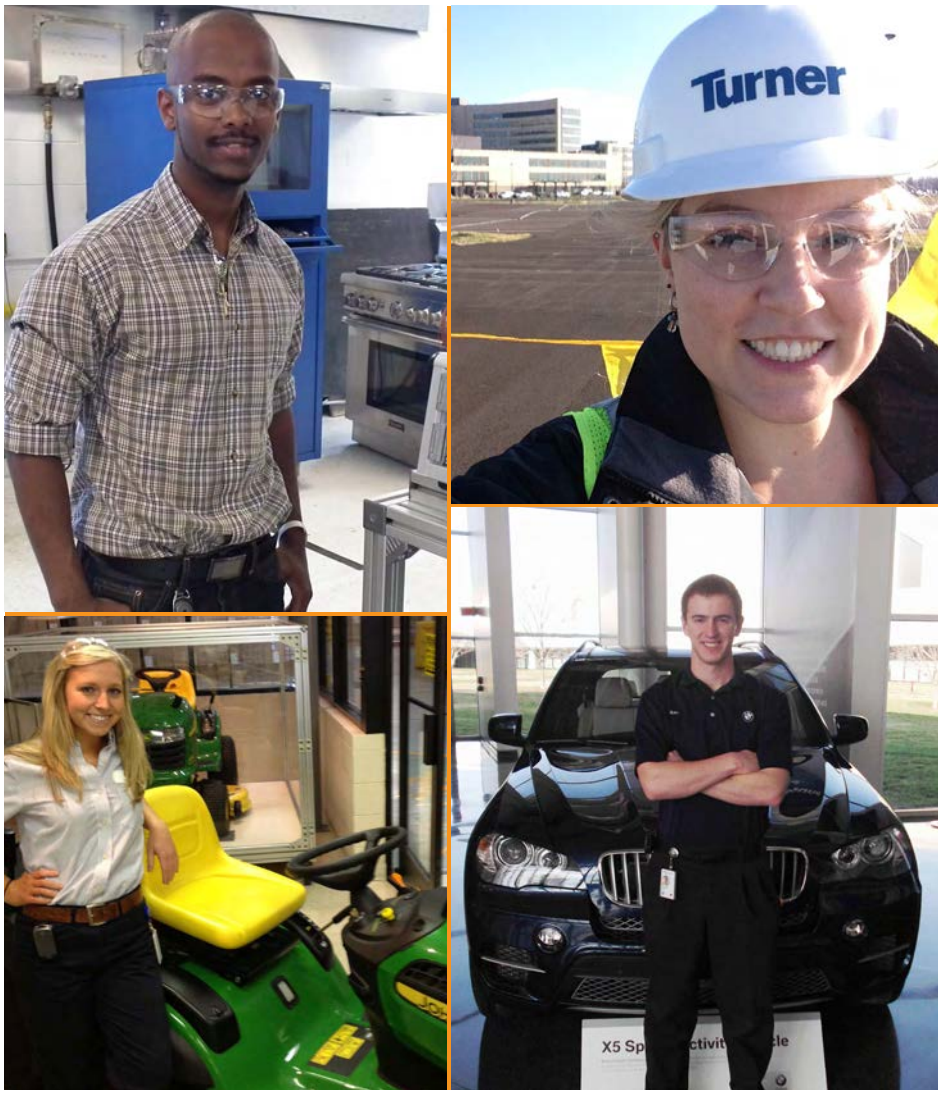
Annual Report

May 2014

Engineering
Professional Practice



R01-1304-001-033-14 DOP: 5/14

Engineering Professional Practice

Annual Report

for

THE UNIVERSITY of TENNESSEE KNOXVILLE

ENGINEERING PROFESSIONAL PRACTICE

May 2014

Engineering Professional Practice
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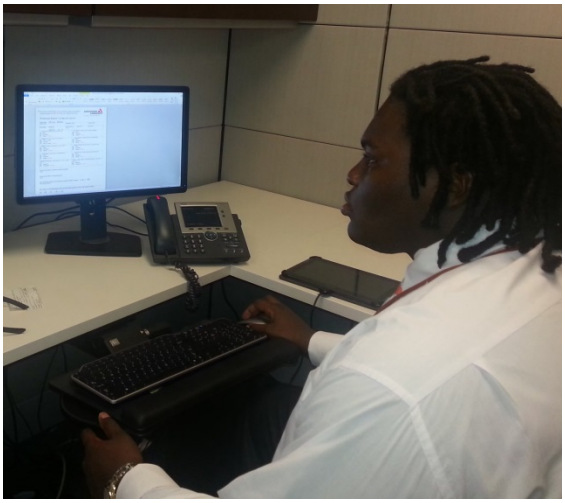
Introduction

The Office of Engineering Professional Practice is dedicated to helping **engineering students** find **educationally relevant** paid co-op or internship positions with one of our hundreds of employers. Our program has been in existence helping students add experience to their education since 1926 making it the second oldest program in the south and one of oldest cooperative education programs anywhere.

Key accomplishments for 2013

- Fall 2013 Engineering Expo was again the largest since Fall 2008.
- Held largest Spring Engineering Expo in the Spring of 2013 since Spring 2008.
- Held the second annual Engineering Professional Practice Spring banquet in April 2013.
- Held one of our the largest attended Fall engineering cookouts with over 1100 students, staff and faculty participating.
- Saw steady 3% growth in student placements in 2012-13 after a 10% increase in student placements in 2012 over 2011 after the three years just 1% year over year growth.
- 41% of engineering seniors who graduate have worked at least one co-op or internship assignment during their time at UT over the past four years of senior classes.

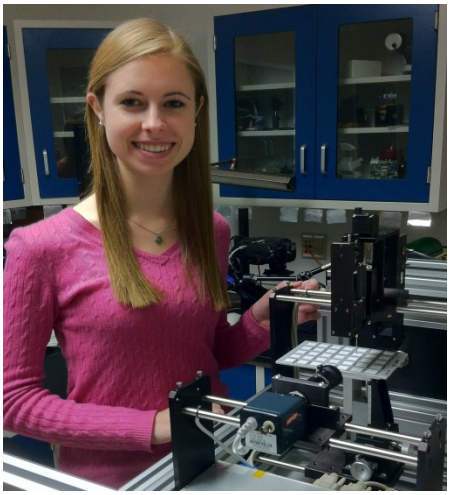
Endorsement from Southern Company:



"I wanted to thank you for your efforts on behalf of your students, myself and Southern Company. We have hired many students over the years from UT and the standard of their professionalism and performance continues to meet and exceed our expectations. UT students have a strong reputation amongst many of our hiring managers here and as such we continue to be committed to competing for your best and brightest. In my role I am often asked by other colleges about the effectiveness of their practices and how their students shape up against others. I typically refer to your program and students as a benchmark. As a program it is clear you have instilled in your students the important message that gaining experience is crucial to their career development. Similarly it is clear that you have taught them the important skills of marketing themselves effectively, they are among the most impressive students I speak with, and I speak with a lot of students. All of the students I speak with who have come from UT testify to the invaluable assistance you all provided them in preparing them for their career. All that to say I really appreciate all that you do in helping me to recruit high quality Engineers to Southern Company at UT. I look forward to recruiting many more!"
Michael Armstrong, Campus Recruiter, Southern Company, Dec. 6, 2012.

Experiential Education in the form of Co-op and Internships is good for Engineering Students:

Any Experience is good, but Co-op is best



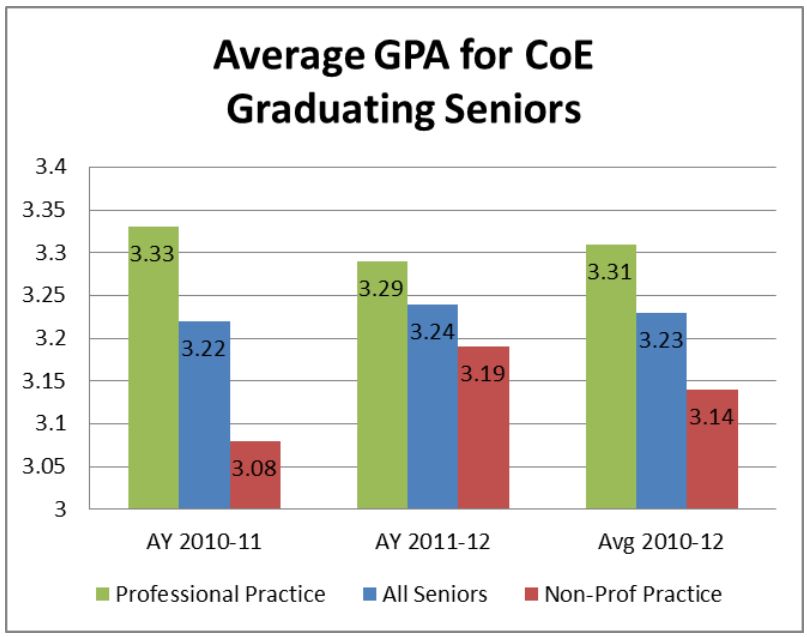
In light of many pressures engineering students find themselves in to graduate quickly and find a job, and with a plethora of opportunities to do undergraduate research, study abroad, etc. We often forget that historically the best option available for students is cooperative education. Co-operative education is a superior program to the internship program, but the internship program is superior to no work experience:

Co-op > Internship > no engineering work experience

The depth of the engineering work experience grows through three semesters such that the third semester of work typically results in 50-75% of the meaningful work experience that occurs over the three semesters.

Experiential Education Improves Academic Performance

For example, the average GPA for graduating engineering students participating in Engineering Professional Practice over the two year period of 2010-11 thru 2011-12 is 3.31 compared to the non-participants GPA of 3.14. The educational benefit of the experiential education is a significant component to consider.



This data shows that students who participate in co-op and internships make, on average, higher grades than those who don't. One likely reason for this is the cycle of learning that takes place during the rotational periods. Students normally go on their first co-op assignment during their sophomore year before they have learned very much about engineering. They then get exposed to many real-world problems and challenges that they still haven't learned, or may never learn, in school. Once they return to school, they begin to see the engineering fundamentals behind these challenges they faced in the field and thus deeper learning occurs. Then as they progress in their engineering major, they begin to learn concepts that they see in the field which re-enforces the learning process. This is very similar to what takes place on a smaller scale during a chemistry class and chemistry lab or a physics class and a physics lab: class learning and experiential learning.

Engineering Students with Engineering Experience Accelerate Their Job Search

The three most important things employers tell our office they look for when recruiting engineers for full time positions, in order, are:

1) Good grades
2) Engineering experience
3) Ability to communicate well

In reality, students who choose to participate in co-op and internships don't wait until their senior year to begin looking for a full time job, they actually accelerate the job search process by beginning their search in the freshman year. Surveys of our graduating engineering seniors show that, on average, 75% of co-op students receive a job offer from their co-op employers. Approximately 50% of these students take the offer, the rest presumably take better offers from other employers or proceed to graduate school.

Co-op Students Stay on Track for Graduation

Co-operative education at the University of Tennessee requires a student to work at least three semesters with the same company, typically alternating between work and school.

Year	Fall	Spring	Summer
1st	School	School	Work
2nd	School	Work	School
3rd	Work	School	School
4th	School	School	

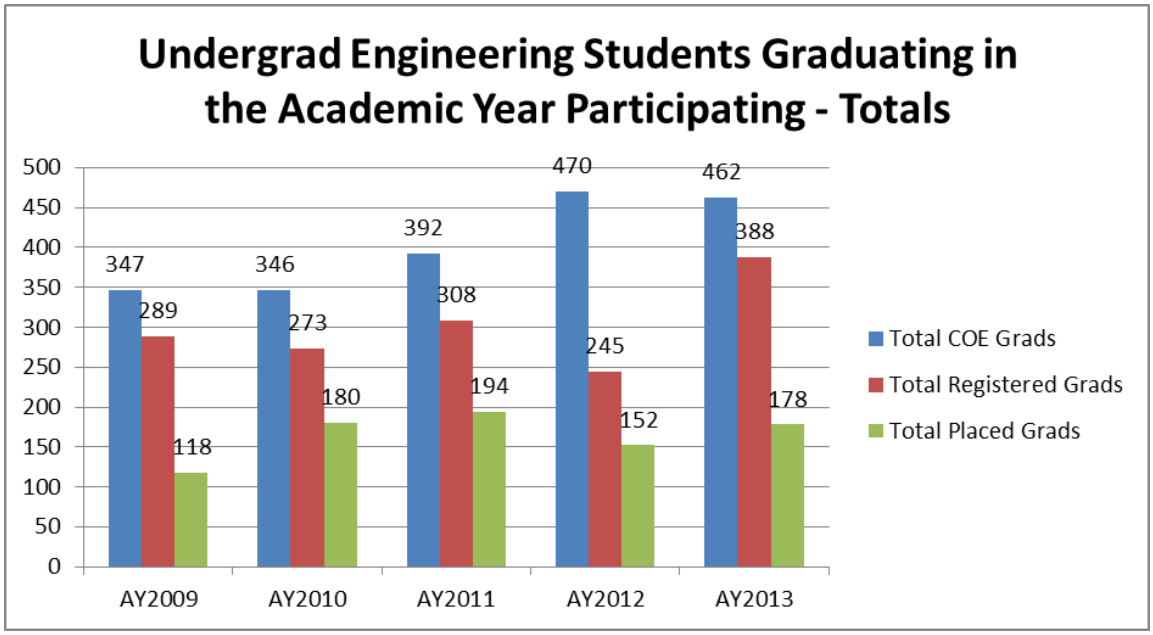
Year	Fall	Spring	Summer
1st	School	School	School
2nd	Work	School	Work
3rd	School	Work	School
4th	School	School	

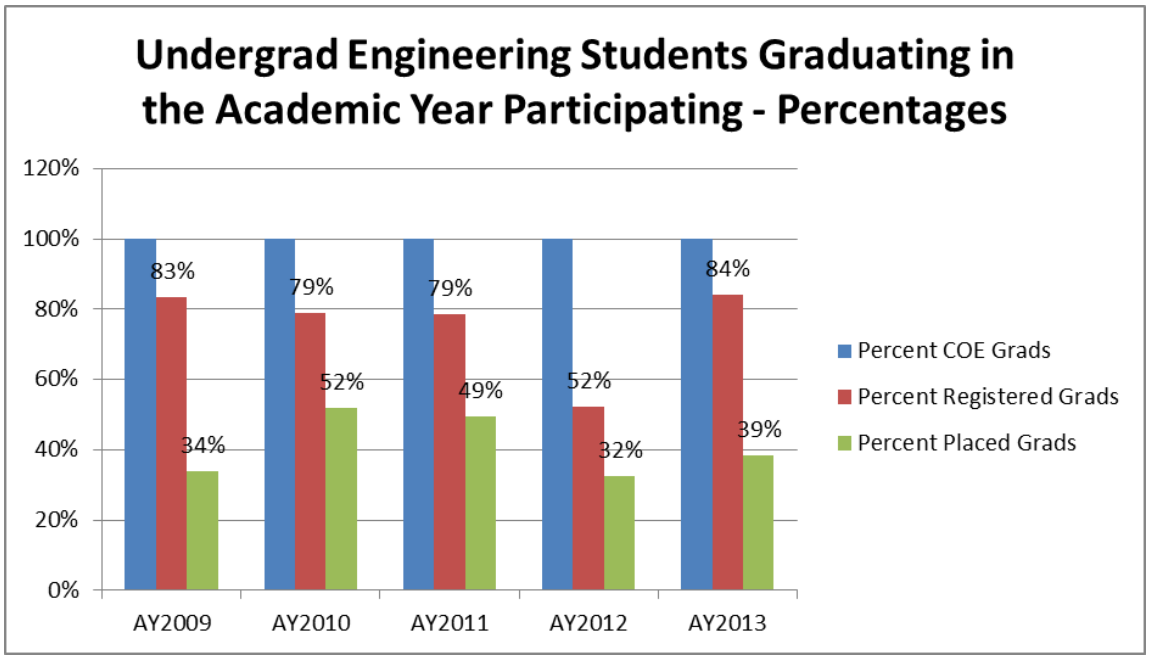
Engineering co-op students are very motivated to graduate as quickly as possible and the College of Engineering has structured its academic program to ensure a minimal impact to the engineering graduation rate. Improved opportunities to take courses during the summer semesters at the university level beginning in 2013 will enhance UT engineering co-op students' ability to graduate more quickly relative to the past when the summer terms did not have a robust enough set of course offerings to always ensure timely graduation rates.

Students that start the co-op process in the summer before their sophomore year, and are able to make full use of the three summer semesters, can still graduate in the spring of their 4th year. A co-op student with a well advised plan still only needs to take eight academic semesters to graduate unless they decide to add a minor or participate in additional academic activities such as study abroad.

Students Graduating that Participated in the Engineering Professional Practice Program:

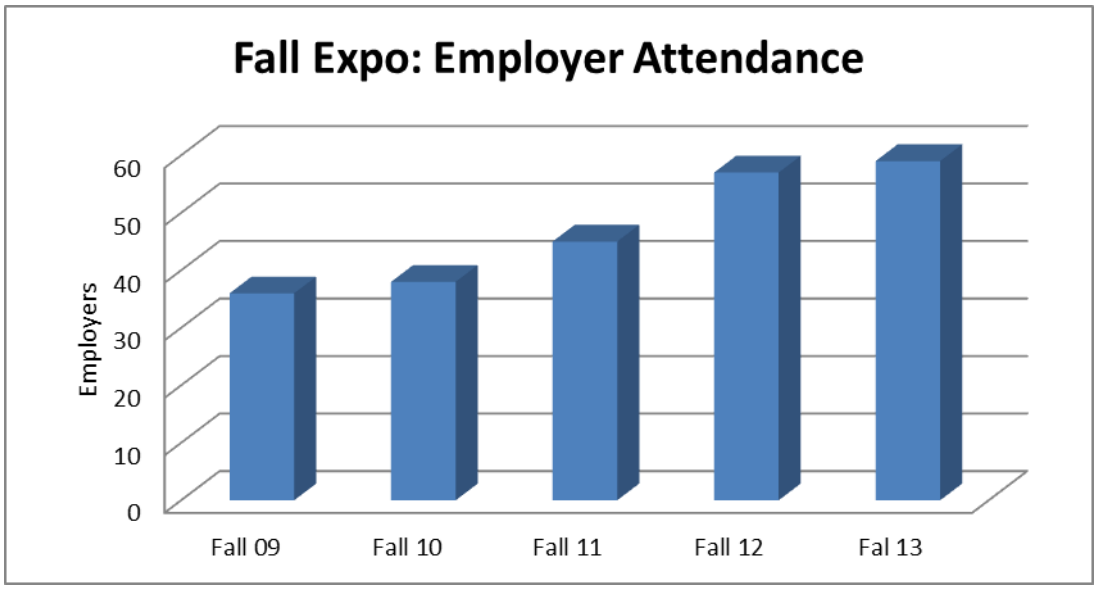
Our office continues to see strong interest and high participation levels from engineering students with total placed COE graduates participating in co-op and internships averaging 41% over the period AY2009 through AY2013. Also, since 2009 we have averaged 75% of graduating seniors having at least registered with our program. Total COE Grads = all graduating engineering students in the academic year; Total Registered Grads = all engineering students that at least registered with the Engineering Professional Practice office; Total Placed Grads = number of graduating engineering students that worked at least one assignment.

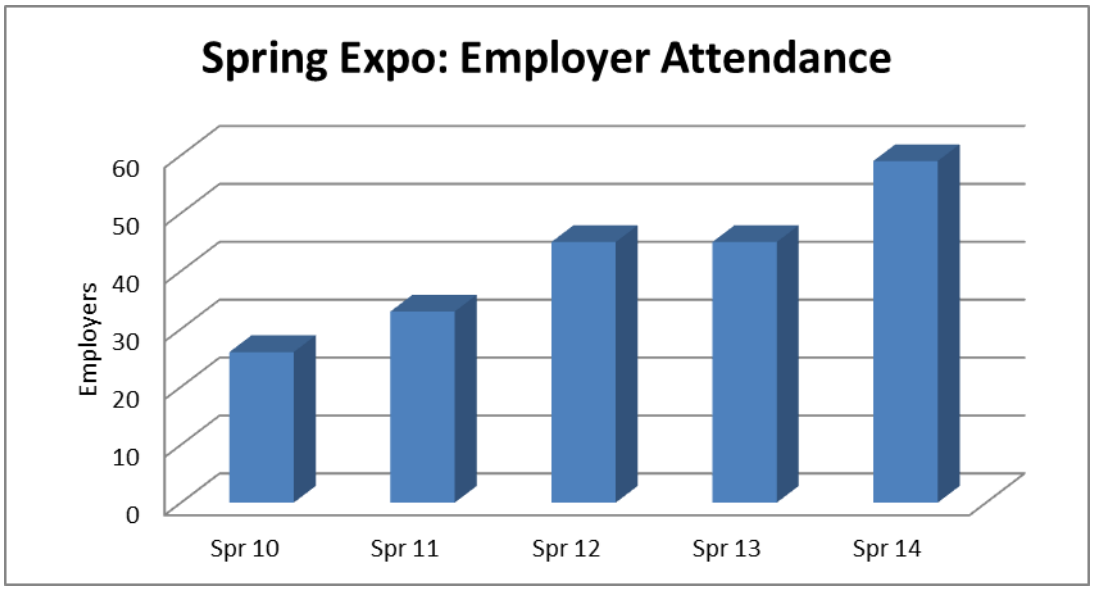




Engineering Expo Employer Attendance is on the Rise

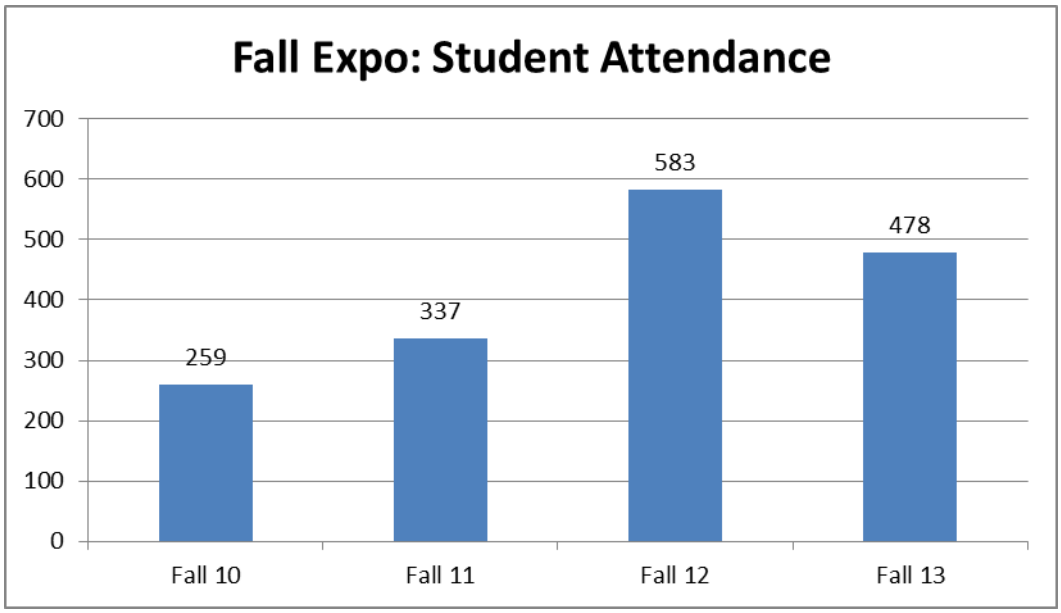
Our program has experienced four consecutive years of growth in Engineering Expo employer attendance since AY 2008-09.



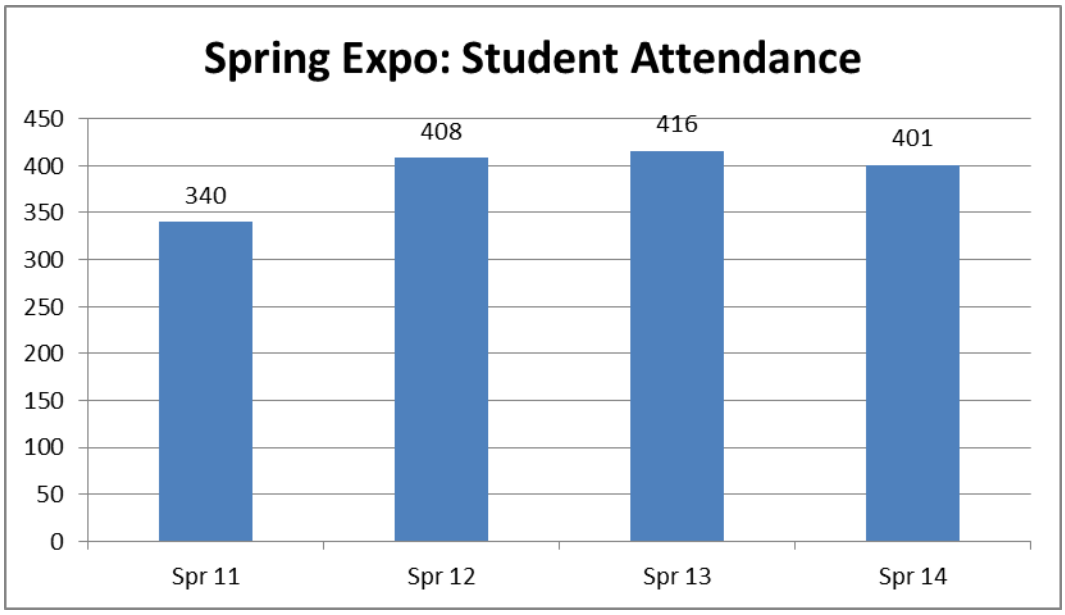


Engineering Expo Student Attendance is Strong

While the student attendance at the Engineering Expo event remains strong overall, a decrease year over year from Fall 2013 to Fall 2012 was experienced due to several factors related to the later date of the Fall event and the requirement for students to be registered with the office in order to attend. While the quantity was down, the quality of student due to verification with our office was up.

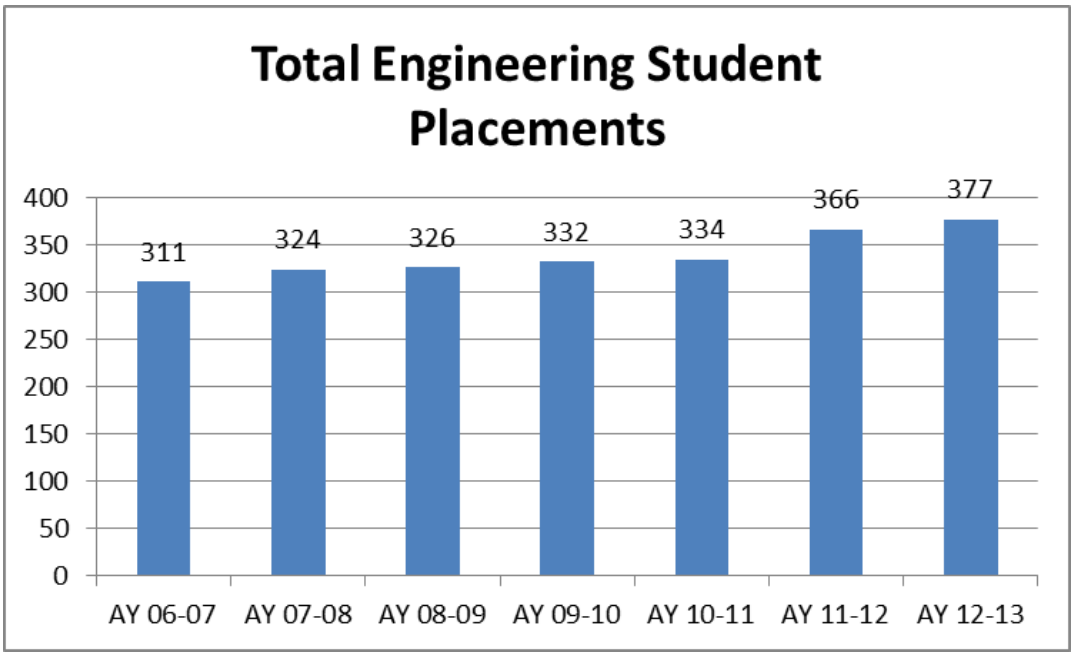


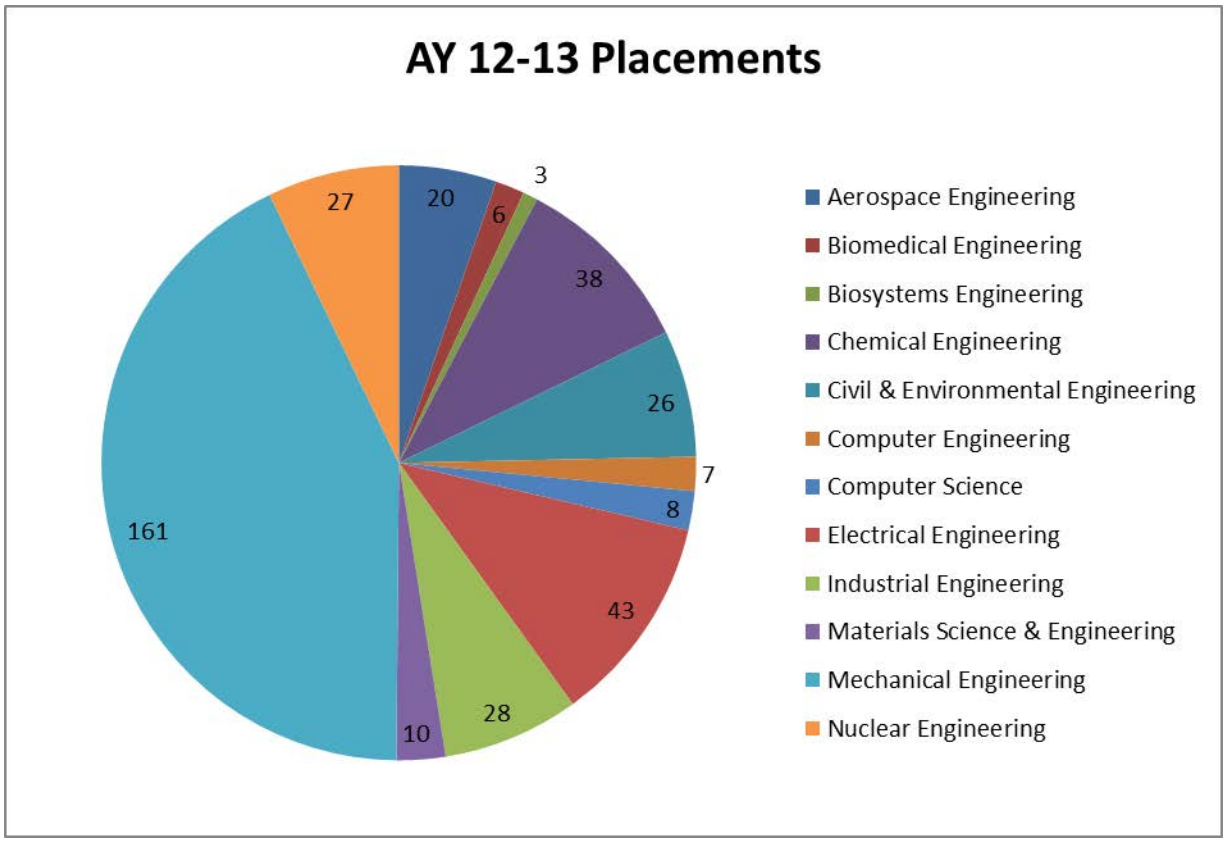
The Engineering Expo attendance for the spring event is holding steady over the past three spring expos.



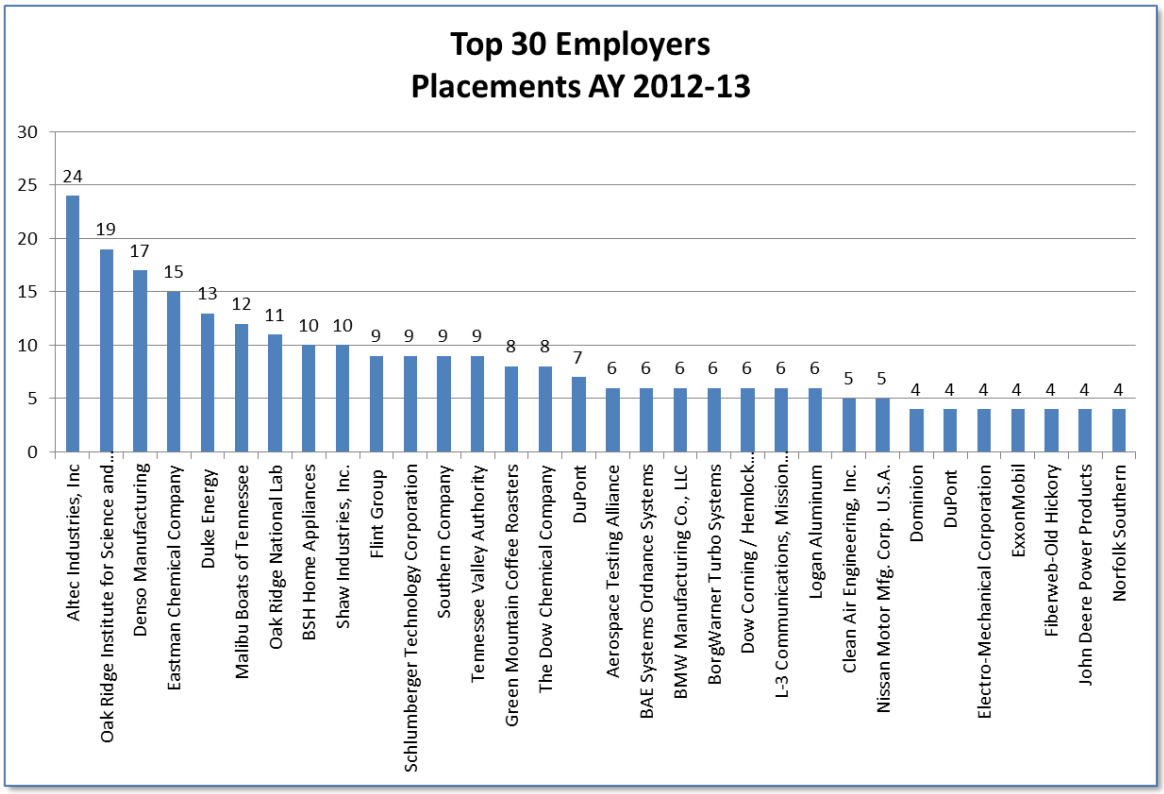
Student Placements are Continuing to Increase

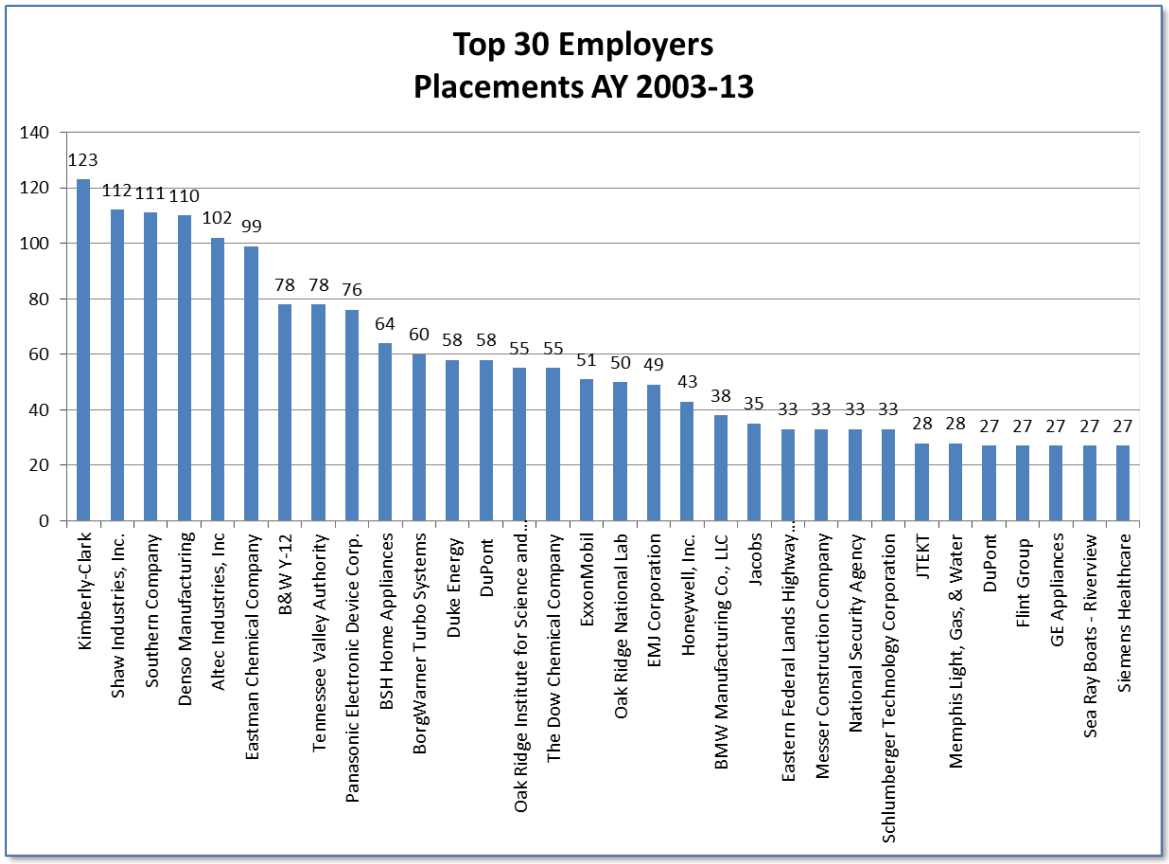
The program's student placement saw a 3% year over year growth from AY 12-13 over AY 11-12 after experiencing a 10% year over year growth student placements in AY 11-12 over AY 10-11.





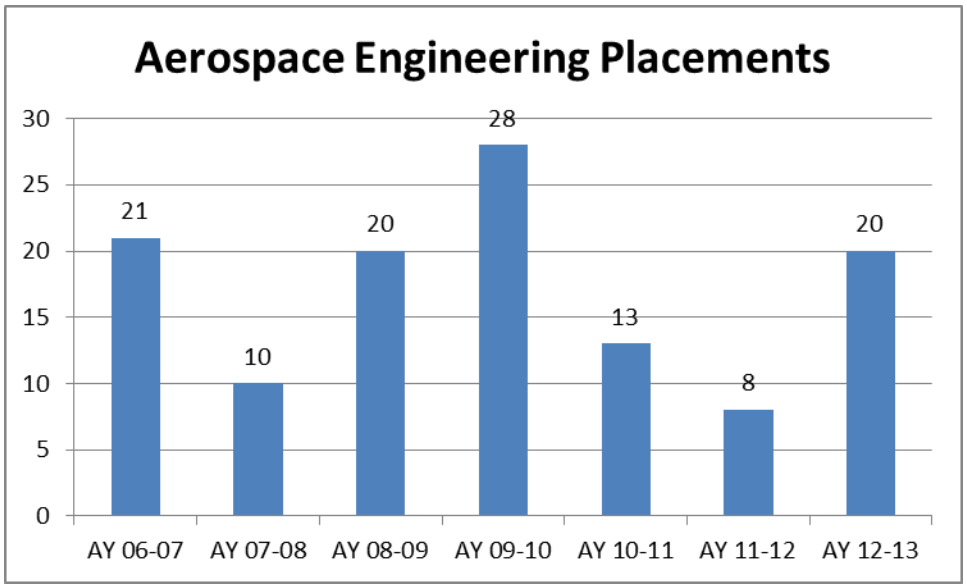
Top 30 Employers for 2012-2013 compared to the Top 30 Employers for past Ten Years

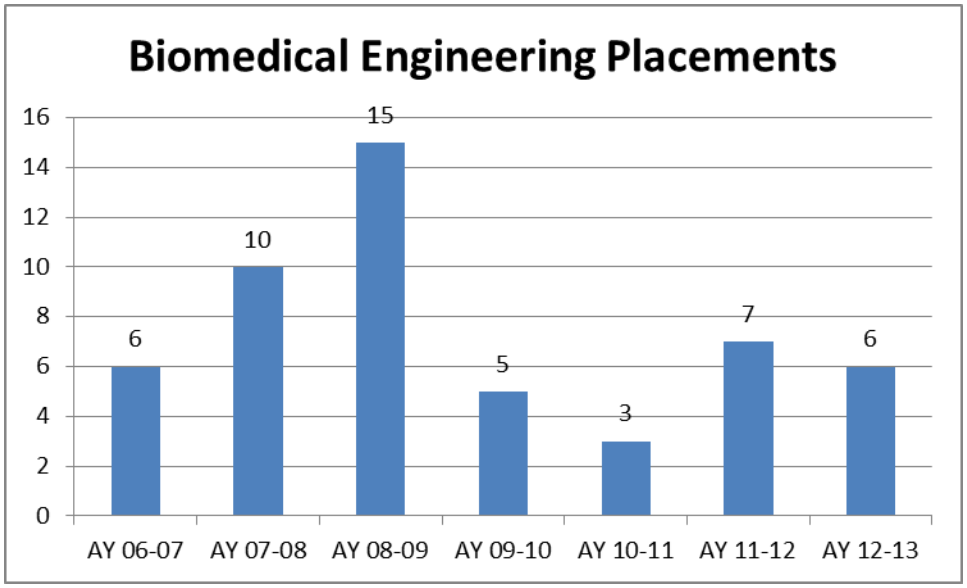


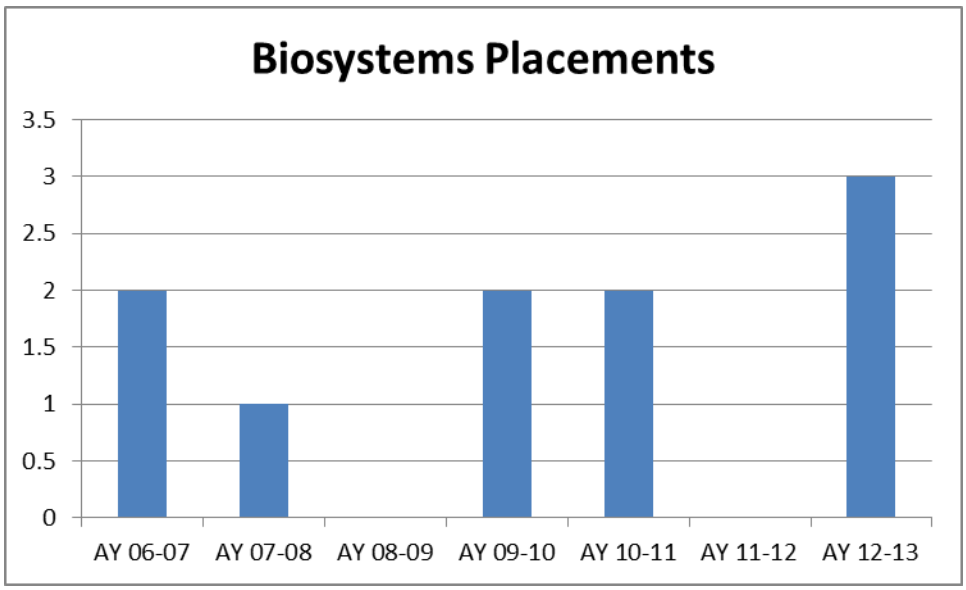


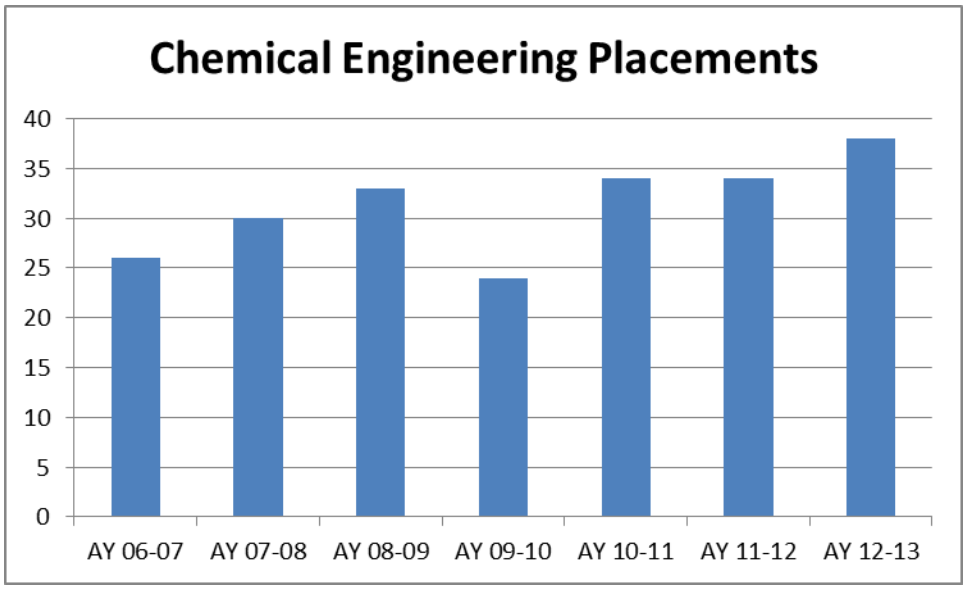
Placement of Engineering Majors by Discipline and by Year:

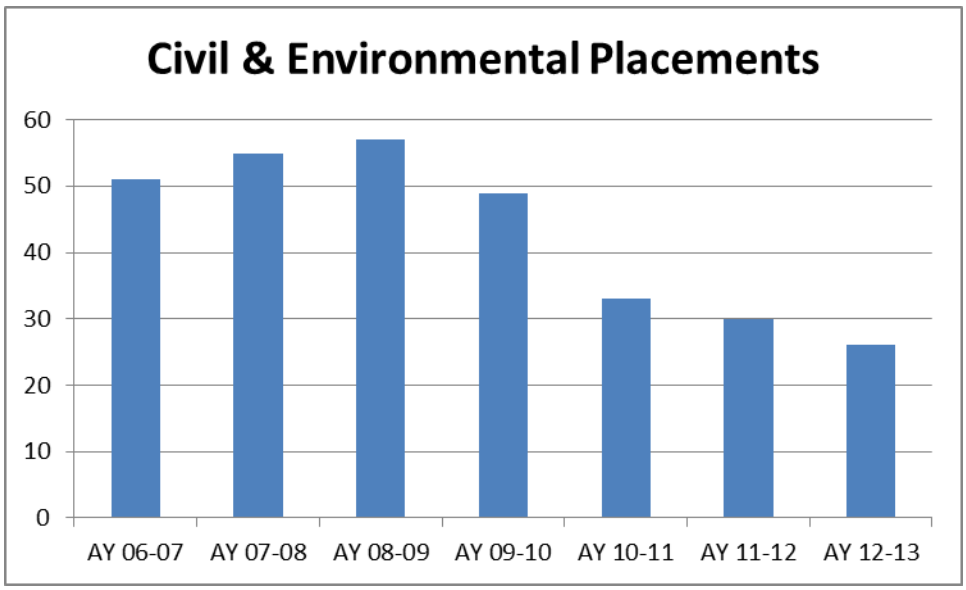
Year	Aero	Biomed	Biosys	Chem	Civil & Env	Comp Engr	Comp Sci	Elect	Indust	Mat Sci	Mech	Nucl	Total
AY 06-07	21	6	2	26	51	13	0	43	19	3	110	17	311
AY 07-08	10	10	1	30	55	12	2	54	15	4	111	20	324
AY 08-09	20	15	0	33	57	9	2	52	21	0	104	13	326
AY 09-10	28	5	2	24	49	13	7	51	38	3	95	17	332
AY 10-11	13	3	2	34	33	10	6	48	27	12	127	19	334
AY 11-12	8	7	0	34	30	11	4	63	30	9	146	24	366
AY 12-13	20	6	3	38	26	7	8	43	28	28	161	27	377

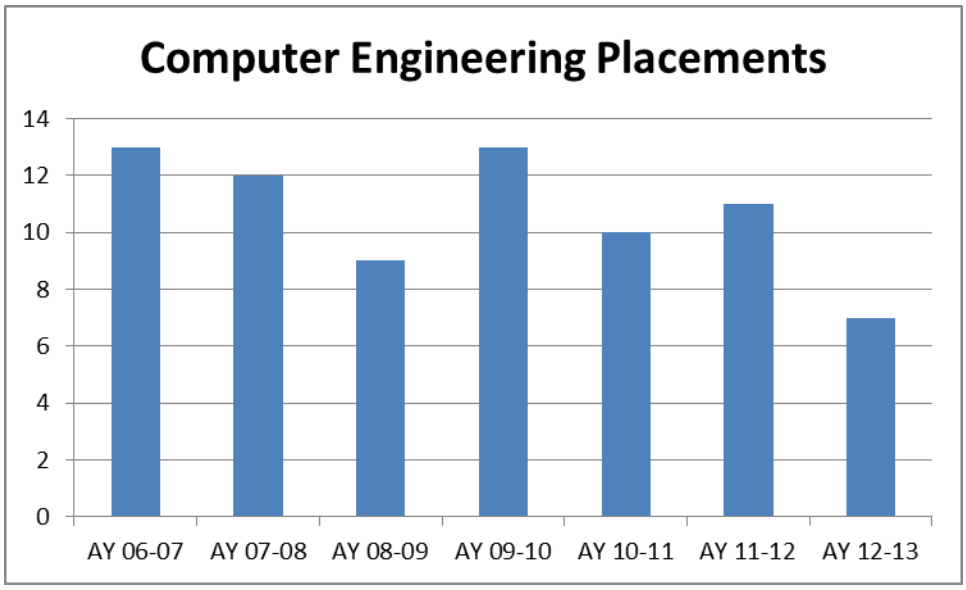


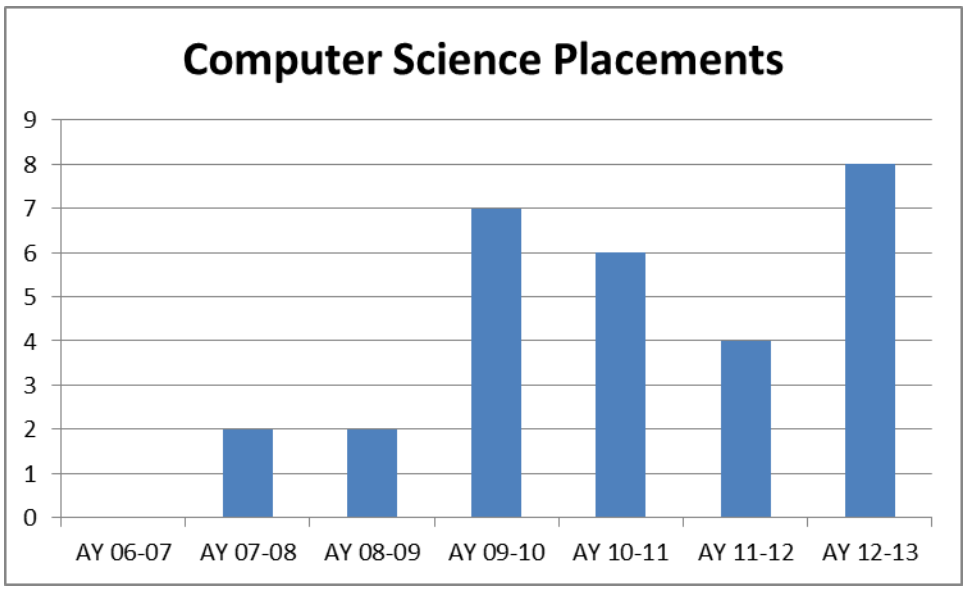


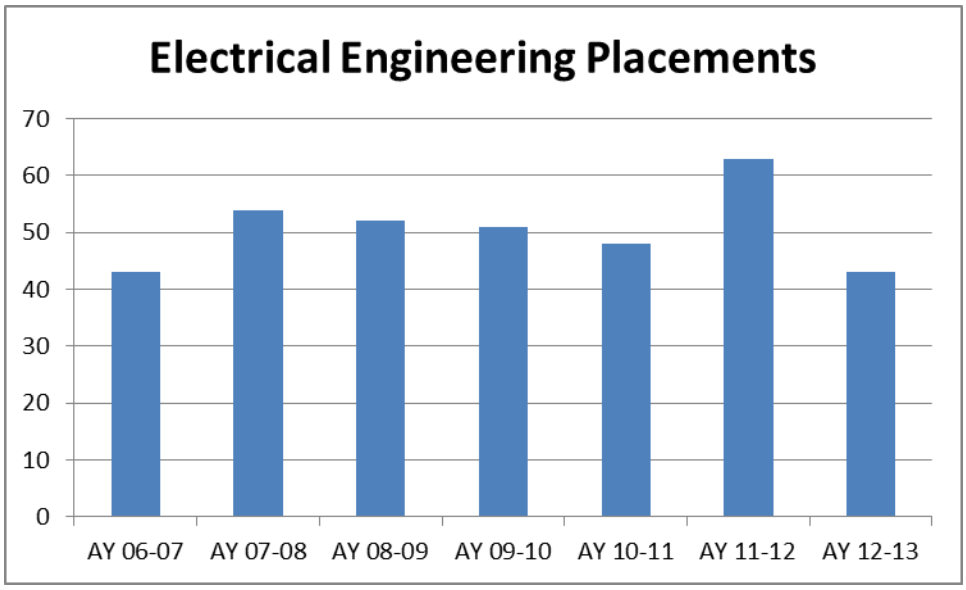

Biosystems Placements
3.5
3
2.5
2
1.5
1
0.5
0
AY 06-07
AY 07-08
AY 08-09
AY 09-10
AY 10-11
AY 11-12
AY 12-13

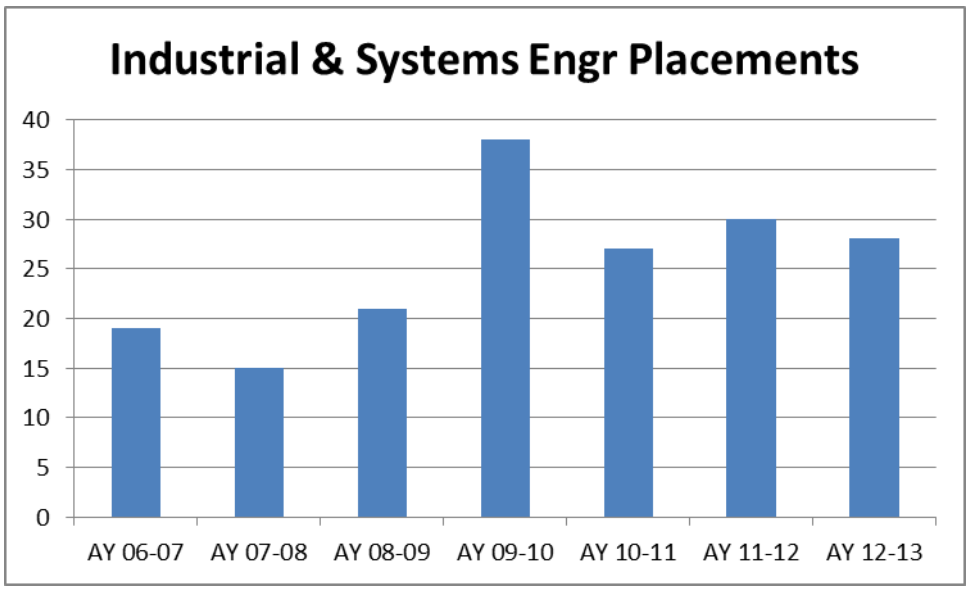

Chemical Engineering Placements
40
35
30
25
20
15
10
5
0
AY 06-07
AY 07-08
AY 08-09
AY 09-10
AY 10-11
AY 11-12
AY 12-13

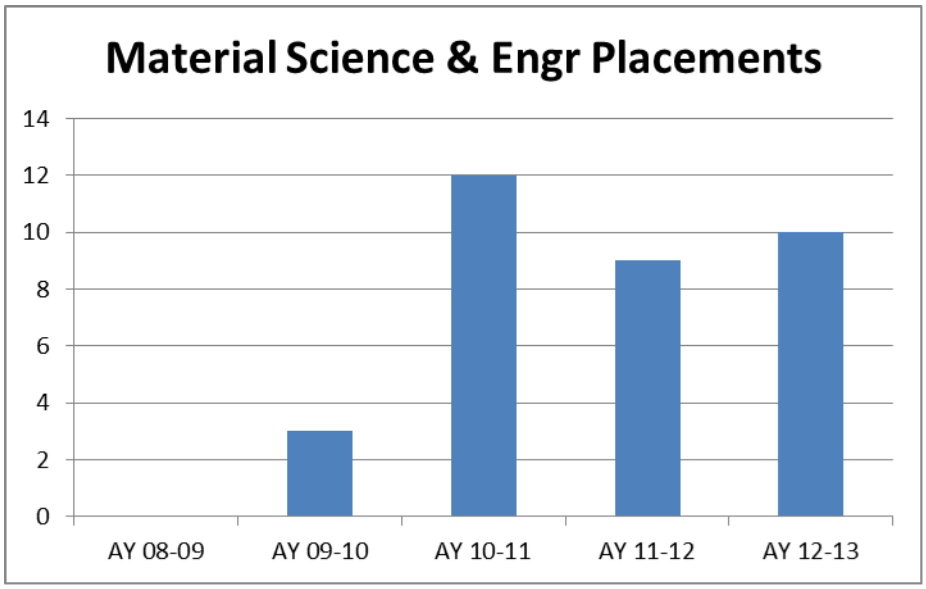

Civil & Environmental Placements
60
50
40
30
20
10
0
AY 06-07
AY 07-08
AY 08-09
AY 09-10
AY 10-11
AY 11-12
AY 12-13

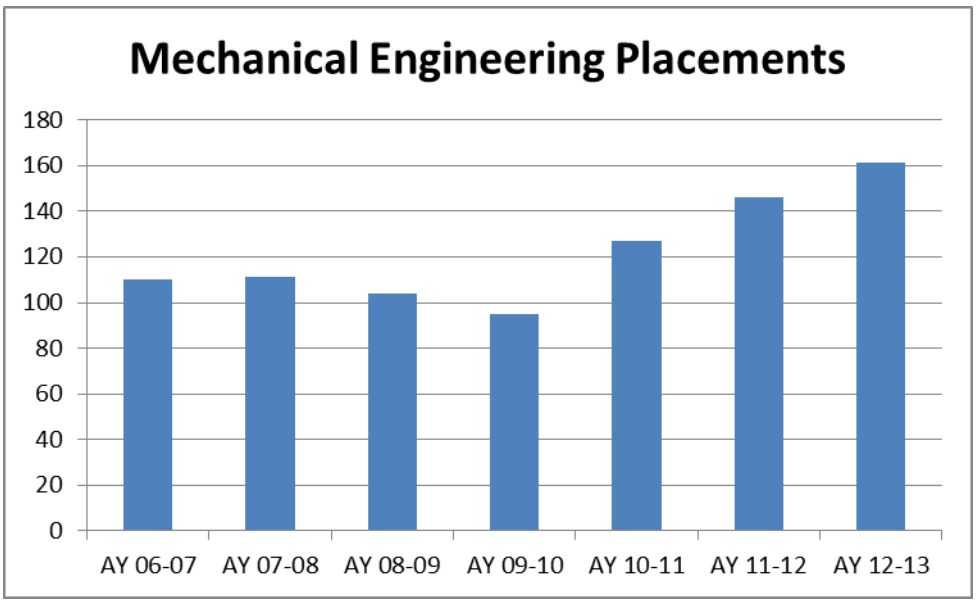

Computer Engineering Placements
14
12
10
8
6
4
2
0
AY 06-07
AY 07-08
AY 08-09
AY 09-10
AY 10-11
AY 11-12
AY 12-13

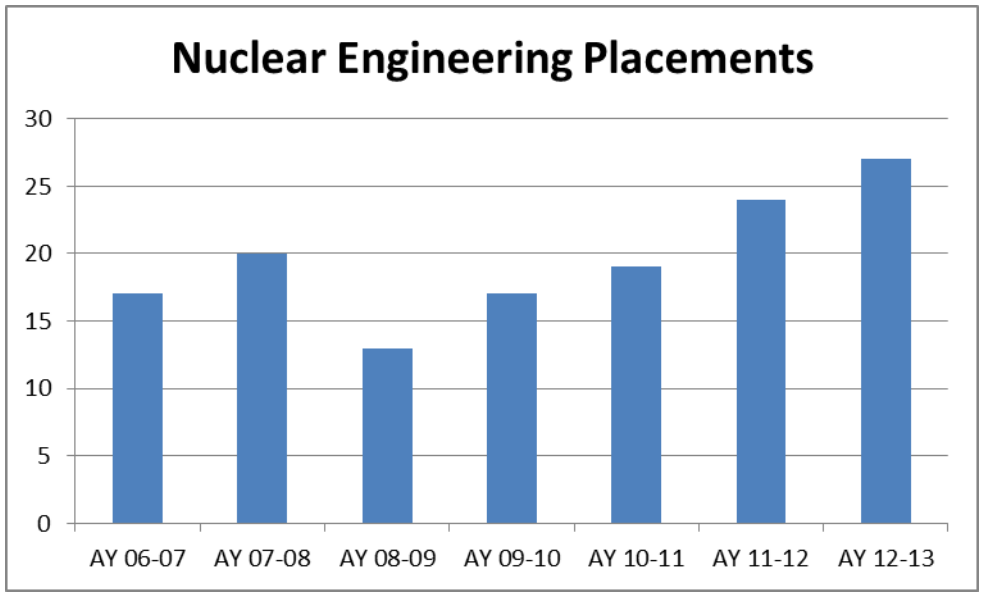

Computer Science Placements
9
8
7
6
5
4
3
2
1
0
AY 06-07
AY 07-08
AY 08-09
AY 09-10
AY 10-11
AY 11-12
AY 12-13


Electrical Engineering Placements
70
60
50
40
30
20
10
0
AY 06-07
AY 07-08
AY 08-09
AY 09-10
AY 10-11
AY 11-12
AY 12-13


Industrial & Systems Engr Placements
40
35
30
25
20
15
10
5
0
AY 06-07
AY 07-08
AY 08-09
AY 09-10
AY 10-11
AY 11-12
AY 12-13

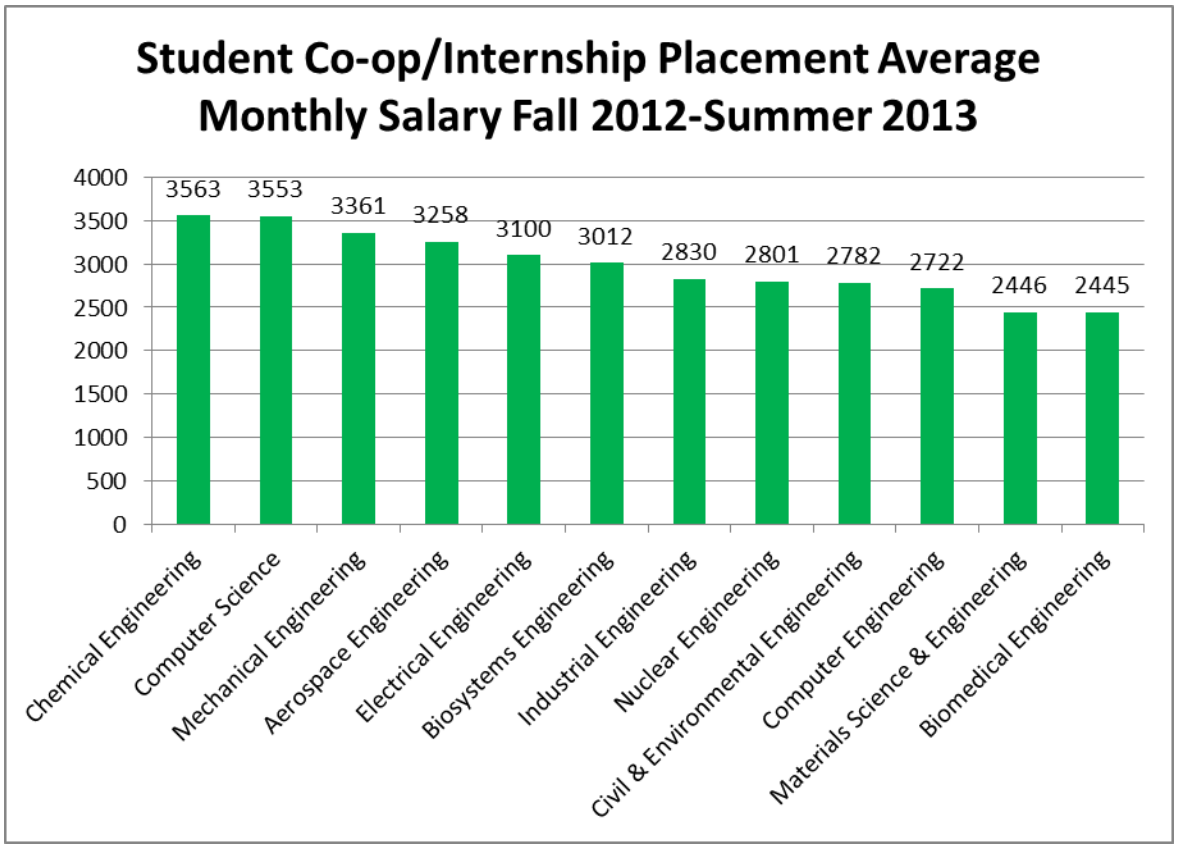

Material Science & Engr Placements
14
12
10
8
6
4
2
0
AY 08-09
AY 09-10
AY 10-11
AY 11-12
AY 12-13


Mechanical Engineering Placements
180
160
140
120
100
80
60
40
20
0
AY 06-07
AY 07-08
AY 08-09
AY 09-10
AY 10-11
AY 11-12
AY 12-13


Nuclear Engineering Placements
30
25
20
15
10
5
0
AY 06-07
AY 07-08
AY 08-09
AY 09-10
AY 10-11
AY 11-12
AY 12-13

Student Co-op/Internship Placement Monthly Salary: Fall 2012-Summer 2013

Engineering students continue to earn significant amounts of money during their engineering co-op and internship experiences. Students are then able to use some of this money to assist with housing, books, and tuition during the semester they return to campus.



In a typical year, engineering students collectively will earn over $3.8 million. This means that the Engineering Professional Practice program is not only educationally relevant to students, but also financially relevant to students. Students then bring a portion of this money back to campus and therefore it is financially relevant to the College of Engineering and The University of Tennessee.

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COLLEGE OF ENGINEERING

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