

How to Maximize the Impact of ASEE Student Chapters

Abstract

With the approval of the Board of Directors for the new Student Constituent Committee, the American Society for Engineering Education is inviting more student involvement. One goal of the Student Constituent Committee will be to promote the development of ASEE student chapters on college campuses. These ASEE student chapters have the opportunity to significantly influence the future of engineering education through current engineering students.

Current graduate students are understood to be the future educators, so many campuses already provide at least some resources for students interested in academic careers. In light of those existing resources, how can a new ASEE student chapter maximize its impact on campus?

Using a strategic planning process, an ASEE student chapter can maximize its impact on engineering education and bring additional value to ASEE student members. To begin, we identify the goals of the ASEE student chapter. Then, we assess the resources currently offered by other campus entities that could overlap with ASEE student chapter activities. Finally, we develop strategic ASEE student chapter events and activities that further the goals of ASEE and that provide value beyond what other campus organizations already provide.

Identify ASEE Student Chapter Goals

The first step in maximizing the effectiveness of an ASEE student chapter is to identify its goals. While the exact goals may vary between campuses, the fundamental goals of an ASEE student chapter are to encourage engineering students to pursue academic careers, to increase pedagogical understanding (i.e., knowledge of how to teach), to encourage excellence in teaching among graduate teaching assistants, and to provide a network for those considering and searching for faculty jobs. ASEE student chapters may also strive to promote engineering to K-12 students and to promote engineering graduate school to undergraduate students.

In short, ASEE student chapters aim to (1) disseminate information, (2) teach skills, (3) promote engineering and engineering education, and (4) foster community.

First, ASEE student chapters can disseminate information to many audiences. They show K-12 students what engineering is. They inform undergraduate students about engineering graduate school. They introduce graduate students to careers in academia. All this information enables students to make informed decisions.

Second, ASEE student chapters teach skills to equip graduate students to be successful as future engineering educators. These vital skills include preparing a curriculum vitae (CV), applying and interviewing for a faculty position, writing research funding proposals, starting and maintaining a research laboratory, teaching effectively, and balancing teaching and research responsibilities. Equipping graduate students to be successful educators is the most direct way to impact the future of engineering education.

Third, ASEE student chapters promote engineering and careers in engineering education. Promoting engineering and academic careers often occurs in conjunction with disseminating information, but promoting engineering is more than simply providing facts. Promoting engineering means encouraging students to consider engineering careers, especially students who otherwise might not consider them. The encouragement aspect is essential for increasing the involvement of underrepresented groups in engineering and engineering education.

Finally, ASEE student chapters cultivate a sense of community among graduate students preparing for careers in engineering education. While other campus entities may share some of the previous three goals, an ASEE student chapter has the unique opportunity to foster a community of engineering students excited about improving the state of engineering education.

Assess Existing Campus Resources

The second step in maximizing the effectiveness of an ASEE student chapter is to assess the resources currently offered by other campus entities that share ASEE student chapter goals. Other campus entities could include other student organizations, campus administrative units or centers, and formal classes or certificate programs. Researching the activities of other entities can help an ASEE student chapter avoid duplicating the services already available to students. As a case study, we will assess the resources available at the University of Illinois.

At the University of Illinois, other student organizations with goals similar to ASEE include the College Teaching Effectiveness Network, Promoting Undergraduate Research in ECE, and the Engineering Council.

The College Teaching Effectiveness Network (CTEN)¹ organizes four to five workshops per semester to prepare graduate students for teaching careers in academia. While CTEN and ASEE share similar goals in dispersing information about academic careers and equipping graduate students for effective teaching, CTEN is a university-wide organization, and the workshop topics are not always applicable to engineering education. Also, the lecture format does not encourage community among those who attend CTEN events.

Promoting Undergraduate Research in ECE (PURE)² is a program that pairs an undergraduate student with a graduate student mentor to guide the undergraduate through a semester research project. The goal of PURE—to introduce undergraduate students to research and expose them to graduate student life—is complementary to the goal of ASEE to encourage undergraduate students to consider engineering graduate school. However, the PURE program is currently restricted to a single engineering department.

Engineering Council (EC)³ at the University of Illinois organizes K-12 engineering outreach events and provides informative programs on graduate school for current undergraduate students. To reach K-12 students of all ages, EC organizes the annual Engineering Open House to demonstrate to thousands of visitors the impact of engineering on everyday life. EC also invites accepted high school seniors to visit campus for three days to experience engineering life with Student Introduction to Engineering (SITE). As a resource for current undergraduate students, EC coordinates the Graduate School Conference, which includes information on engineering

graduate study and graduate student life. EC also conducts the Undergraduate Research Workshop to connect undergraduate students with opportunities to do research with professors. Although EC shares the ASEE goal of dispersing engineering information, EC events are run mostly by or for undergraduate students without much graduate student involvement.

At the University of Illinois, campus administrative units or centers that sponsor programs with goals similar to ASEE include the Graduate College, the College of Engineering departments, and the Center for Teaching Excellence.

The Graduate College⁴ contains a career center for graduate students of all majors and offers many workshops to help graduate students successfully prepare for academic jobs. Topics include how to write a CV, how to conduct an academic job search, how to improve networking skills, and how to write grants proposals. However, because the workshops are university-wide, not all the material is applicable or accurate for engineering graduate students.

Some departments within the College of Engineering conduct their own mandatory teaching assistant (TA) orientations for new TAs at the beginning of each semester. Other departments send their TAs to the campus-wide TA orientations. The TA orientation programs provide basic training in teaching and grading. Due to time limitations, the orientations cannot provide in-depth information on engineering pedagogy. Also, because TAs generally only attend the orientation before their first TA assignment, TAs typically receive little further training after they begin teaching.

The Center for Teaching Excellence (CTE)⁵ works to improve the teaching effectiveness of both faculty and teaching assistants. CTE conducts a campus-wide TA orientation called the Graduate Academy for College Teaching.⁶ This orientation contains presentations on teaching, grading, and lesson planning. TAs also practice teaching and receive advice. CTE provides other pedagogy workshops throughout the semester. However, many graduate students are unaware that this resource is available.

At the University of Illinois, formal classes and certificate programs with goals similar to ASEE include the College Teaching and Academic Careers course and the Graduate Teacher Certificate programs.

The College Teaching and Academic Careers course (EOL 585)⁷ prepares graduate students for teaching at the college level through readings, speaker presentations, discussions, and other class assignments. Students learn the theories and philosophies of teaching and learning as well as the application and practice of effective teaching techniques. However, as a four-credit-hour university course, not all graduate students are able to dedicate the time to enroll in such a class.

The Graduate Teacher Certificate (GTC)⁸ program is administered by the Center for Teaching Excellence. Participating students must teach for at least two semesters, receive feedback multiple times on their teaching, and then reflect on that feedback. They must also participate in teaching development workshops and programs. This program focuses on using practical teaching experiences to improve an individual's teaching ability. However, this program makes no efforts to foster community among graduate students interested in teaching.

After evaluating existing campus resources, an ASEE student chapter can have maximal impact by focusing on areas neglected by other campus entities and, as appropriate, by teaming up with other campus entities to improve existing resources.

Develop Strategic ASEE Student Chapter Events

The third step in maximizing the effectiveness of an ASEE student chapter is to develop strategic ASEE student chapter events and services that further the goals of ASEE and that other campus organizations do not already provide. The key is to map existing campus resources onto ASEE student chapter goals and determine which goals are most neglected. Then ASEE can add real value to the campus community by providing services and events that complement—and not duplicate—existing events on campus.

In general, the strategic plan for an ASEE student chapter should work on areas overlooked by other campus entities. For example, on a campus that fails to perform engineering outreach to K-12 students, the ASEE student chapter could organize volunteer opportunities for engineering students to perform hands-on engineering activities with K-12 students. On a campus that does not adequately inform undergraduate students about graduate school, the ASEE student chapter could hold panel discussions on graduate student life and on the graduate school application process. On a campus where graduate students are provided with little guidance on preparing for academic careers, the ASEE student chapter could sponsor a series of workshops on life in academia and the skills necessary to succeed there. On a campus lacking a sense of community among graduate students preparing to enter academic careers, the ASEE student chapter could plan networking events and social activities.

At a large university with many existing resources such as the University of Illinois, one possible strategic plan could focus primarily on establishing a sense of community among graduate students planning to enter academia. Because valuable resources for enhancing engineering education and preparing for an academic career can be widely scattered among many different student organizations, campus administrative units, and college classes and certificate programs, the ASEE student chapter could also focus on connecting its members with the best of those resources.

Many of the existing resources at the University of Illinois are workshops, seminars, and other programs developed and presented by people within the University. Thus, ASEE student chapter events could add value for its members by bringing speakers from outside the University. For example, the ASEE student chapter could sponsor a panel discussion of faculty members from a variety of higher education institutions. This would give graduate students insight into the teaching and research environments at both small and large institutions and at both private and public institutions.

While there are endless possibilities for ASEE student chapter events, ASEE can maximize its impact when student chapter events provide resources and benefits that are otherwise unavailable on campus.

Conclusion

ASEE student chapters have great potential for helping achieve the goals of ASEE. Using a strategic planning process, an ASEE student chapter can maximize its impact on engineering education and bring additional value to ASEE student members on campus.

The strategic planning process contains three steps. First, we identify the goals of the ASEE student chapter. Second, we assess the resources currently offered by other campus entities with similar goals. Third, we develop strategic ASEE student chapter events and activities that further the goals of ASEE and that provide value beyond what other campus organizations already provide.

With smart planning, ASEE student chapters can maximize their impact on campus and bring benefits to both students and the ASEE national organization.

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