

ENGINEERING LEADERSHIP CENTER





THE MOTIVATION

As the modern world grows increasingly interconnected and complex, adaptation to change has become imperative for organizational success. In addition, fundamental issues such as globalization, increasing economic interdependence, population growth and resource depletion compound the challenges related to human health improvements, energy utilization, infrastructure upgrades and information technology advancements. Consequently, the complexity of problems facing today's industries requires leaders with both technical and team management skills to solve complex problems that require careful assembly of social, ethical, political, economic, business and engineering components. Specifically, a leader must be able to create and communicate a shared vision, build a high-performance team, develop and execute team-based projects, and create innovations that endure.

In the National Association of Colleges and Employers' Job Outlook 2016 survey, when asked which attributes they look for on a candidate's resume, the largest group

of respondents —78.9 percent — chose both leadership and the ability to work in a team. About one-third of CEOs leading S&P 500 corporations hold undergraduate degrees in engineering. Indeed, K-State engineering alumni are on the forefront of this trend of engineers as leaders.

To address the changing landscape, the Engineering Leadership Center was established to produce engineering graduates with leadership skills. The Carl R. Ice College of Engineering has a rich history of producing engineers who move to the top of management structures to lead companies and public sector organizations. Hence, we seek to leverage and build upon our strengths to continue this tradition. Research has shown that leaders are mostly made — about one-third natural talent and two-thirds environmental influence. That means that leaders can indeed be developed through appropriate training.

THE ELC — AT A GLANCE



The Engineering Leadership Center, or ELC, coalesces the capabilities of exceptional engineering students with tested leadership practices and skills, enabling them to become future leaders who will turn ideas into solutions, and continue the task of making science and technology synonymous with innovation while exerting their talent and influence on all aspects of society.

Facilitators and coordinators within the ELC programs seek out and work with those students exhibiting the desire to expand their educational experience beyond the traditional coursework and projects of their majors. They recognize that “spark” and initiative in those who can transform an assigned task to a broader opportunity of impact and vision — albeit the birth of “leadership.”

Our Engineering Leadership and Innovation, or ELI, Program, in association with the Staley School of Leadership Studies, equips students with the skills and confidence needed to lead real-world engineering projects. Participants enroll in coursework in leadership and business, establish a relationship with an industry mentor, and experience corporate partner interactions that include on-site facility

tours and on-campus corporate events. Students then create and implement innovative solutions on creative inquiry teams, where they compete in regional, national and international events on topics ranging from wind power to unmanned aircraft, developing practical skills in leadership and collaboration.

Membership opportunities in student leadership-based organizations round out the ELC umbrella: Engineering Ambassadors, whose mission is to promote the engineering profession and serve as hosts for the K-State Carl R. Ice College of Engineering; Engineering Student Council, an organization dedicated to increasing student involvement in the college; and Steel Ring Engineering Honor Society, best known for its role in planning, organizing and hosting K-State’s annual Engineering Open House. Numerous other student organizations are also available under categories of departmental organizations and honorary societies, as well as groups within the college’s Multicultural Engineering Program and Women in Engineering program — each with its own leadership opportunities whether at the officer, committee or service level of membership.

DEVELOPING TOMORROW’S LEADERS AND INNOVATORS

VISION

The Engineering Leadership Center identifies students who exhibit marked leadership skills and capabilities, combining and directing these assets toward college programs and organizations designed for enhancing, expanding and honing excellence.

MISSION

The Engineering Leadership Center provides opportunities for students who —

- strive to broaden their academic education beyond the major discipline area,
- demonstrate self-initiative and will take advantage of opportunities for personal and professional development,
- want to develop and execute team-based plans and projects, and
- aspire to be leaders in their professions, their communities and beyond.

ELI PROGRAM



The Engineering Leadership and Innovation, or ELI, Program, in association with the Staley School of Leadership Studies, prepares exceptional engineering students for potential leadership roles. They are provided the skills to flourish in a dynamic business environment operating under complex social, ethical, political, economic, business and engineering dimensions.

Through the ELI program, students are equipped with the skills and confidence needed to lead real-world engineering projects. Classroom learning is strengthened through a leadership practicum on a creative inquiry team. Students are mentored to build a realistic career plan directed toward engineering management while building an appreciation of nontechnical factors that affect technical decisions.

Participants are instructed in business and leadership theory through coursework, and learn to define

a personal leadership development path through conversations with mentors. Students then create and implement innovative solutions on creative inquiry teams, and document their leadership journey using standard measurement tools interpreted in collaboration with mentors from corporate partners.

Primary elements of the program are coursework in leadership and business, leadership practice, a relationship with an industry mentor, and corporate partner interactions that include on-site facility tours and on-campus corporate events.

Students build a leadership portfolio containing a leadership development plan, leadership report and essay, and a section containing reflections on their experience and photos. Each student receives an evaluation of his or her leadership development skills, as well a scholarship of \$3,000 per year.

CREATIVE INQUIRY TEAMS



Each year, hundreds of students participate on creative inquiry teams to compete in regional, national and international events.

Creative inquiry is the college's highly successful blend of undergraduate research and practice. Students work on teams to find innovative solutions to problems with challenging technical, economic and social components. Each year, hundreds of students participate on nearly 20 creative inquiry teams to compete in regional, national and international events on topics ranging from wind power to unmanned aircraft.

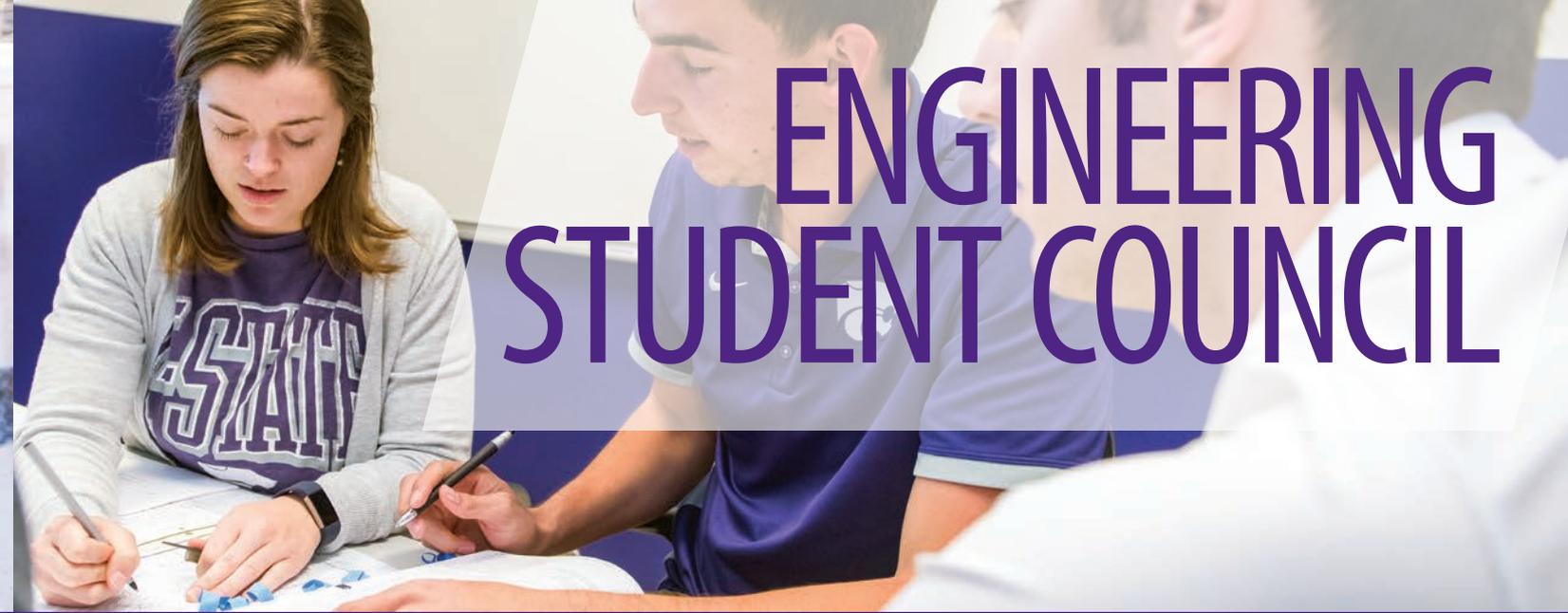
During competitions, students face situations where they discover how much they have learned in their courses. Developing practical skills in leadership and collaboration while turning ideas into real systems is the continuing success story of our student creative inquiry teams. This structure provides an exceptional training environment for world-class engineers and scientists.



ENGINEERING AMBASSADORS



ENGINEERING STUDENT COUNCIL



Engineering Ambassadors are current engineering students with a mission to promote the engineering profession and be a host for the college. Each ambassador is required to hold a weekly office hour and help with a minimum number of events per semester by prepping for or providing tours and information to prospective students, parents and teachers.

During the fall semester, the Engineering Ambassador organization conducts the College Leadership, Understanding and Education, or CLUE, program. Participants attend informational sessions to become more familiar with the college, including its various departments, majors and programs of study, as well as associated organizations, activities and design teams. These students have the opportunity to grow personally, professionally and academically by engaging in both small and large group discussions with their peers, CLUE coordinators and guest speakers/presenters.



Engineering Student Council, or ESC, is a student organization dedicated to increasing student involvement in the college. This is accomplished through arranging and hosting social, educational, career and service activities for engineering students throughout the year. ESC facilitates its meetings to encourage communication between the student body and the college. It connects students to potential internship and career opportunities through industry events, and provides support, funding and awards to outstanding student organizations.

The ESC executive board is responsible for coordinating major annual all-college activities for engineering students, including council meetings and Engineers Week. Each member is responsible for a different aspect of the board's duties, and must learn to work as part of a highly effective team overseeing and managing the many facets of large projects. The ESC executive board closely collaborates with the office of the Dean of Engineering, regular college

ESC arranges and hosts social, educational, career and service activities for engineering students.

sponsors, event vendors, student organizations and the engineering student body at large.

The Leaders in Freshman Engineering, or LIFE, committee is a division of ESC that provides leadership opportunities to freshmen. Under guidance of seniors in engineering, LIFE members spend the year learning how to plan events, and communicate with administrators, industries and students.

STEEL RING



STUDENT ORGANIZATIONS



Steel Ring Engineering Honor Society was established in 1929, composed of outstanding upperclassmen in the college. Student members are chosen from each engineering department based on leadership, scholarship and engagement. Its preamble, expanded over the years, now reads: "To lead in political, social and professional activities; to encourage underclassman participation in activities promoting engineering; to provide for recognition of outstanding effort and accomplishment; and to promote the best interests of the College of Engineering."

Best known for its role in hosting K-State's annual Engineering Open House, Steel Ring began awarding a cup to the department with the best display in 1929, which increased the quality and number of displays, leading to today's more than 35 awards given to departments and their students who put hundreds of hours into displays and activities for Open House visitors to enjoy.

Steel Ring organizes and hosts the annual Engineering Leadership Reception at which the college honors

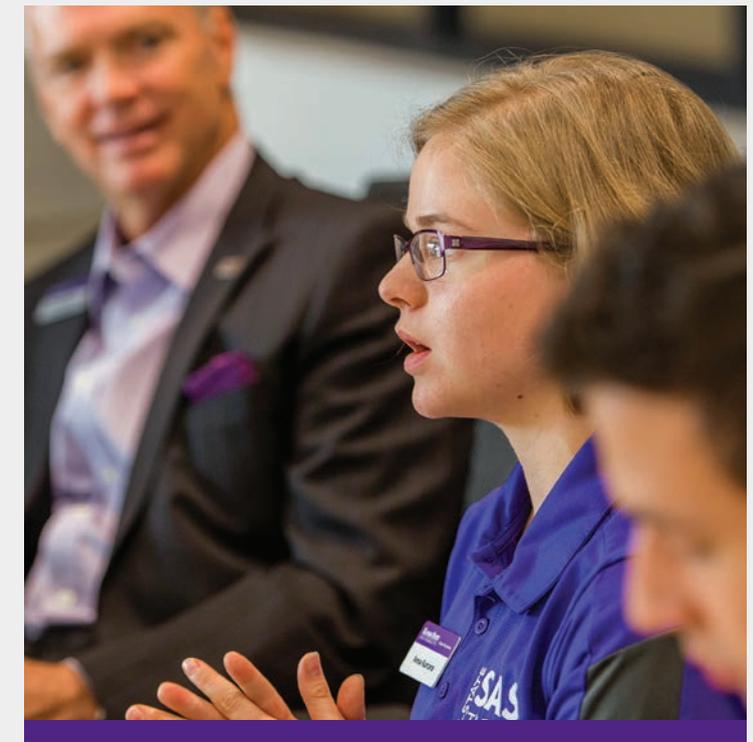
Outstanding upperclassmen are chosen to join Steel Ring based on leadership, scholarship and engagement.

dedicated individuals who have made K-State engineering successful — first held in 1945 and a part of Open House ceremonies since. At this event, Steel Ring presents awards for the following Open House displays: best overall, curriculum and career, children's, graduate, technical, interactive and innovation. It also presents special awards to recognize outstanding students and advisers in the college, including Advisor of the Year, Saint Patrick and Saint Patricia, Knights of St. Patrick, Outstanding Department and Yellow Brick.

From the American Society of Mechanical Engineers to the Institute of Transportation Engineers to Engineers Without Borders, our 25-plus departmental organizations offer students experiences in professional development, education and member involvement that includes outreach and meeting peers at other universities.

Membership in one of several national honorary societies — Alpha Pi Mu, Chi Epsilon, Omega Chi Epsilon, Phi Alpha Epsilon, Tau Beta Pi, Alpha Epsilon and Eta Kappa Nu — represents opportunities for students to promote their chosen profession, perform service projects, and be recognized for academic excellence and reputable character.

Four other organizations offer leadership avenues for increasing the number of those historically underrepresented in engineering and STEM fields, empowering lives to their fullest potential and building important career skills — the American Indian Science and Engineering Society (AISES), National Society of Black Engineers (NSBE), Society of Hispanic Professional Engineers (SHPE) and Society of Women Engineers (SWE).



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