PREPARING THE NEXT GENERATION OF ENGINEERING LEADERS

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THE CAMPAIGN FOR STUDENTS

COLLEGE OF ENGINEERING

UNIVERSITY of WASHINGTON

What makes a great education?

The Campaign for Students is a comprehensive vision for re-imagining engineering education, encompassing support for people, programs and places. In the UW College of Engineering, we know that an engineering education provides not just technical skill development, but a framework for problem-solving that translates to a wide range of career opportunities for our graduates. We also know that the way this education is delivered must evolve to keep pace with the demands of today's marketplace and tomorrow's challenges. In short, to continue providing our students with a foundation for success, we must offer not only a strong grounding in engineering fundamentals, but also hands-on, collaborative learning opportunities, academic support and financial assistance, and the state-ofthe-art facilities required for learning.

From leadership skills development and program support to scholarships and new and renovated learning spaces, the UW College of Engineering's Campaign for Students is a comprehensive vision for re-imagining engineering education, encompassing support for people, programs and places. We seek your partnership in taking our student experience to the next level to enable our graduates to tackle the societal challenges of the future, from access to clean water, to affordable health care delivery, to cyber security and more.



The UW College of Engineering: Together We Will

The College of Engineering is part of a world-class research university with a top-ranked health system in a region that is a hub of aerospace, biotechnology, global health and information technology innovation. This environment provides unique educational opportunities: Our undergraduate students participate in cuttingedge research, choose from a broad range of majors, and work collaboratively with professors and graduate students to address global problems. Senior design capstones, collaborative entrepreneurial coursework, industry internships and student team projects are just some examples of our commitment to project-based, real-world learning - one of the best preparations for entering the engineering workforce.

With an enrollment of more than 8,000 students, we are the third largest of all the UW's colleges and schools and produce more than half of our state's engineering graduates, and we will continue to add capacity. Under the leadership of Dean Mike Bragg, who brings a strong, studentcentered focus to his vision for the college, UW Engineering is poised to significantly expand on current initiatives to reimagine the student experience for the next generation of engineers.



Commitment to Student Success

- Among the college's numerous initiatives to help students from all backgrounds to be successful, from their first days on campus to their post-college careers, are the following:
- Direct-to-College Admissions. Beginning in 2018, the college will admit more than half of each class directly to the college as freshmen, in order to reduce student uncertainty and better prepare graduates for careers in engineering.
- STARS. The Washington STate Academic RedShirt (STARS) program provides highly motivated Washington students from economically or educationally disadvantaged backgrounds with a specialized curriculum designed to build learning skills and academic preparation. Thanks to STARS, classrooms are more diverse, which means students of all backgrounds are better prepared to enter an increasingly diverse workforce.

• Engineering Academic Center.

The EAC supports students in building the skills they need to succeed in introductory math, physics and chemistry courses. Founded more than 25 years ago, it is a "second home" to many students from diverse backgrounds.

Career Center @ Engineering.

The Career Center @ Engineering offers career coaching, career fairs, on-campus interviews and programming — such as Technical Interviewing and the Etiquette Dinner — to prepare students for life after the UW.

Adapting to a Changing Industry, Growing to Meet Increased Demand

Engineering education has always focused primarily on building mathematical and scientific expertise, complemented by hands-on learning experiences. Today, it is critical that students receive additional training in practical design skills, teamwork, and leadership abilities across the engineering curriculum in order to be fully prepared for industry careers. At the same time, to solve the great challenges of the future, the next generation of engineers must embody the diversity of the world they will serve. The college must provide greater access, opportunities and support to more students — including those from underrepresented communities, many of whom we lose to other universities with more resources, including scholarship support, to attract and retain them.

Finally, the college must grow to meet the increasing demand for an engineering education. Demand by prospective students is a huge impetus for this growth, as is the growing regional employer demand for engineering graduates:

- Four of the top 10 first-choice majors of UW confirmed incoming freshmen are in engineering.
- Engineering and computer occupations account for over 82% of the projected Washington state annual job openings in STEM fields, however, the state ranks 49th in the production of engineers per engineering occupations.
- While the college produces more than 50% of the engineering graduates in Washington every year, the number of qualified first-year students hoping to major in engineering is and will continue to be far greater than the college's ability to accommodate them without more space and faculty.

In short, Washington needs a higher education system that prepares significantly more — and more diverse — students for high-impact opportunities that meet the growing workforce needs.

Most of the students who are turned away do not lack qualifications or ability; they are turned away because there's not a seat for them in a classroom. Simply put, the UW must educate more engineering students, and educate them in ways that best prepare them for careers. This requires increasing financial support for students, including scholarships (particularly for first- and second-year students) and fellowships; funding programs that facilitate collaborative, leadership-oriented learning and the new tools and resources that advance these educational experiences; and, most critically, building new, state-of-the-art facilities and renovating current spaces to accommodate more students and meet modern teaching and research requirements.

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A New Vision for the Student Experience

This experiential learning is deeply empowering, enabling students to understand early on what it means to be an engineer and the societal impact of the discipline. We know that students learn best when they have the opportunity to participate in handson research and work collaboratively on real-world projects and problems. This experiential learning is deeply empowering, enabling students to understand early on what it means to be an engineer and the societal impact of the discipline. Our vision is to fully incorporate experiential, collaborative learning into our curriculum for an everimproving student experience that prepares our students to be innovators and leaders in solving the societal problems of the future.

Specifically, the Campaign for Students will:

- Enable the college to dramatically expand experiential learning opportunities for incoming freshmen and sophomores and provide an enhanced curriculum that will equip students with the skills necessary to bring engineering thinking and problemsolving into all aspects of business and society;
- Build the financial support necessary to attract and retain a diverse group of top students; and
- Fund a new building and renovations of key facilities in the college to enable collaborative, hands-on learning for all students.

On the following pages we detail the components of this holistic vision, and the investment needed to make it a reality.

Scholarships and Fellowships

Always the lifeblood of student support, scholarships and fellowships are particularly crucial now, as the college restructures admissions.

Under the new Direct-to-College process, high school seniors will apply directly to the College of Engineering, and, once admitted, will be guaranteed acceptance to an engineering major. This will give students — and parents — more peace of mind and a greater sense of community, as well as access to a host of engineering-specific curricular and co-curricular options developed specifically for first-and secondyear students.

The college aims to grow its pool of scholarship funding to help support the influx of additional first-year students, particularly those from underserved high schools (in rural areas or inner cities), those with financial need, first-generation college students and talented Washington students who might otherwise leave the state for compelling offers elsewhere.

At the same time, providing support for masters and PhD students is one of the college's greatest challenges, and fellowship support helps us secure a new level of excellence in both the educational and research experience.

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Our outstanding graduate students receive a stellar education and exciting opportunities for involvement in educational and research experiences, which are in turn essential to both the vibrancy of the undergraduate learning experience and to the success of faculty research.







Program Enhancements

Engineering is piloting a curriculum in support of the 700+ new first-year students who will be entering the college via the Direct-to-College program as well as for students in their second, third and fourth years. With your help the college will develop the following leadership and skill-development programs to support academic and career success and ensure that future graduating classes reflect the diversity of the students who are admitted to UW:

- *Emerging Leaders in Engineering Enhancement:* The current Emerging Leaders in Engineering (ELE) program will be expanded and enhanced to include additional instruction, service activities, and experiential learning (i.e., study abroad, internships, industry capstones and more), all focused on engineering leadership, innovation, and entrepreneurship. ELE scholars will participate in research based on the college's strategic research priorities, and earn an official credential that will appear on their transcript.
- *First Year Experience:* Increased opportunities for freshmen will improve retention and student success by enabling them to take more ownership of their education. Administered through an expanded Engineering Academic Center, these programs will orient students to resources such as makerspaces, provide learning skills, coaching and tutoring, and host industry tours and networking events to introduce students to careers in engineering.
- **STARS Expansion:** To ensure that Washington state students from economically and educationally disadvantaged backgrounds can succeed in engineering majors, we intend to expand and redesign the STARS program to complement the Direct-to-College admissions process. Our goal is to improve student retention and performance by providing increased academic and personal support services as well as STARS scholarships.
- Undergraduate Track in Engineering Leadership: Our most ambitious goal, a proposed new undergraduate track in Engineering Leadership, would draw on a wide range of existing programs and courses—including Global Integrated Systems Engineering, Project Management, Software Product Management, Internet of Things, Sustainable Transportation: Planning & Livable Communities, and more—to provide a comprehensive, integrated academic education in engineering leadership.

Building for the Future

The college's core engineering facilities are currently stretched past capacity, and many of its 23 buildings are antiquated, with classrooms designed for the traditional educational style of the past, rather than the hands-on, collaborative learning style appropriate for the students of today. Without adequate space, we simply cannot accommodate the planned increase in students. And without the right kind of spaces, we cannot continue to provide a competitive education.

A new building for the Paul G. Allen School of Computer Science & Engineering is already underway. The college's goal now is to build a new facility that will provide space for the growing cohort of UW Engineering students, and undertake major facility renovations. These projects will enable us to accept more students and will:

- Provide an educational "home" for cross-disciplinary courses and programs;
- Encourage the interactions that are critical to sparking new ideas and developing students' talents by providing premier teaching and learning spaces, laboratories and makerspaces;
- Facilitate engineering discovery by housing state-of-the-art technology and labs and providing new office space; and
- Give the college an edge in recruiting and retaining the best teachers and researchers — in an environment of fierce competition for top engineering talent — by providing the physical spaces that support faculty and students in pursuing world-class education and research.

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Join Us

Together, these initiatives supporting people, programs and places can vault UW Engineering to the very top tier of engineering programs nationally, but only with your help. In the past, private funding enabled the "margin of excellence" for UW Engineering. In today's funding climate, however, private support is essential. Your investment can create a boundless future for our students and for the world, generating ROI in the form of a new generation of engineers fully prepared to tackle society's greatest challenges.

Thank you for your interest in UW Engineering's Campaign for Students.

For more information, please contact:

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