CREATING A BETTER FUTURE

A STRATEGIC PLAN FOR THE OREGON STATE UNIVERSITY COLLEGE OF ENGINEERING
Since 1889, the Oregon State University College of Engineering has trained a unique class of engineers. These engineers acquire a strong technical foundation coupled with well-developed leadership skills and a broad worldview. They become locally conscious, globally aware leaders who think critically and question assumptions. When they graduate, they join a community of high achievers whose efforts solve seemingly intractable problems, strengthen individuals and communities, and contribute to a better world. These are the qualities that define the Oregon State Engineer™.

The College of Engineering is nationally recognized for its applied approach to engineering education. The college has established a new strategic plan, which is designed to develop the extraordinary potential of our students. The plan provides a blueprint, including priorities and related actions, to keep the college responsive to the times and give our graduates the knowledge, skills, and professional values that tomorrow’s truly exceptional engineering leaders will require.

This strategic plan comes at a pivotal time for Oregon State University, which aims to become one of the top 10 land grant universities in the United States. In Focus on Excellence: Strategic Plan 3.0, 2014–2018, the university signaled three overarching goals at the institutional level: 1) provide a transformational educational experience for all learners, 2) demonstrate leadership in research, scholarship, creativity, and preeminence in three signature areas, and 3) strengthen impact and reach throughout Oregon and beyond.

The College of Engineering is a prominent part of that story. It is the 16th largest engineering program in the United States and is forecast to comprise 30 percent of the 28,000 students planned for the Corvallis campus. For the college, this means an increase of about 25 percent, for a total of 8,400 students. Determining where that growth will occur is only one consideration. As an integral piece of the university’s mission, the college also has defined how it will better position Oregon State for leadership, including reimagining its collaborative relationships with partners in such areas as business, science, public health, and natural resources, in addition to other institutions and the public.
Engineering education and the requirements for engineers and scientists of the future have changed remarkably in the past 25 years. Technology is now personal and hand-held, offering immediate access to centuries of knowledge and late-breaking information. Human health can be individually customized through genome sequencing, and properties of materials can be manipulated through nanotechnology at a billionth of a meter. The interdisciplinary imagination of architects, engineers, and ecologists is envisioning a new generation of sustainable structures that positively interact with the environment. Biotechnology has revolutionized agriculture.

Yet not all change has been constructive. The power of nature and population growth are eroding the nation’s infrastructure. Virtual and physical terrorism threaten the security of the electrical grid that powers our economy. Unrestrained human activity is permanently altering global ecosystems.

An accelerating speed of change, a virtually and physically interconnected world, the scale and complexity of shared problems, entirely new systems for managing such complex networks as health care and water resources, and the emergence of the concept of social and corporate responsibility compel a comprehensive response for engineering education. Society is asking more of future engineers, specifically “T-shaped” engineering graduates who possess broad knowledge across engineering disciplines, deep expertise within a single domain, and the ability to integrate both. The need for communication across disciplines, cultures, and languages is creating an even greater need for engineers with well-developed problem-solving and critical-thinking skills and a collaborative approach to creativity and innovation. These requirements challenge not only students, but the educators, researchers, and facilities that guide and support them on their engineering journey.

The National Academy of Engineering has articulated 14 “grand challenges” that provide an engineering roadmap for the 21st century. Building on its past successes, the College of Engineering’s strategic plan embraces these opportunities to chart a clear and compelling path forward. After a decade of 66 percent enrollment growth, 20 percent faculty growth, and 136 percent research expenditure growth, the college is well-positioned for this strategic focus. The five-year implementation framework included here will boldly generate outcomes to influence the short- and long-term direction of the college.

Planning assumptions for the strategic plan anticipate the college’s future growth, the needs of employers and the research community, and objectives for educating a diverse workforce in Oregon, the Pacific Northwest, and beyond. The plan reflects the recognized value of an increasingly diverse population and the appeal of more flexible degree programs. It includes objectives to closely interconnect teaching excellence with impactful research among undergraduates and streamline the path from undergraduate to professional programs. It reenvisions budget and financial models and identifies selected research areas for investment. In the living laboratory of Oregon and the Pacific Northwest, the college intends to become the partner of choice, modeling collaboration with internal and external stakeholders and demonstrating the wide applicability of an engineering education in a world that demands interdisciplinary solutions.
The College of Engineering’s strategic planning process began in June 2014 and was completed with the launch of the plan on May 1, 2015. Led by Dean Scott Ashford, the process was structured to be transparent, interactive, data-driven, and well-communicated, and to strengthen community within the college. To that end, the college engaged The Napa Group of Novato, California, a nationally renowned strategic planning firm, to guide the leadership-driven yet inclusive and collaborative planning process.

The project had five overall objectives:
1. Create a compelling vision to establish priorities and define possibilities for solving tomorrow’s greatest challenges.
2. Strengthen the college and, as a result, enhance Oregon State University’s standing among its peers.
3. Promote Oregon State’s signature areas through the college’s activities and priorities, and support the university’s strategic plan.
4. Shape the college’s interdisciplinary collaborations with Oregon State partners in business, science, public health, and others.
5. Define strategic investments in key areas of excellence.

Leadership for the project included the college’s leadership team and a steering committee composed of representatives from the university, engineering faculty, alumni, and external partners.

**Leadership team members:** Scott Ashford, Kearney Professor and dean; Bella Bose, interim head, School of Electrical Engineering and Computer Science; Kathy Higley, head, Department of Nuclear Engineering and Radiation Health Physics; Christine Kelly, associate dean for academic and student affairs; Jim Lundy, executive associate dean; Joe McGuire, interim head, School of Chemical, Biological and Environmental Engineering; Michael Scott, interim head, School of Civil and Construction Engineering; Rob Stone, head, School of Mechanical, Industrial and Manufacturing Engineering; Jim Sweeney, head, School of Chemical, Biological and Environmental Engineering; and Irem Tumer, associate dean for research and economic development.
Steering committee members: Belinda Batten, director, Northwest National Marine Renewable Energy Center, and professor, School of Mechanical, Industrial and Manufacturing Engineering; Glencora Borradaile, assistant professor, School of Electrical Engineering and Computer Science; Rod Boucher, founder and chief executive officer (retired), EnergyConnect, Inc.; Mary Coucher, vice president of intellectual property and business development, IBM Oregon; Kenneth Mark Griffie, vice president of product creation, Nike Apparel/Equipment, Nike, Inc.; Rich Holdren, associate vice president, Research Office, Oregon State University; Shawn Scoville, executive vice president, OSU Foundation; Tom Skoro, senior vice president, Kiewit Infrastructure West Co., and president, General Construction Co.; David Trejo, professor and Pritchett Chair in Construction Engineering Management, School of Civil and Construction Engineering; John Turner, co-director, Advantage Accelerator, Oregon State University, and instructor, College of Business; Jake VanderZanden, vice president of corporate development, DW Fritz Automation; and Tim Weber, vice president and general manager, Printing and Technology Development, Hewlett-Packard Company.

The project engaged the college community to assist the dean and leadership team in developing a comprehensive five-year plan that defines a new vision, mission, and core values for the college, and specifies goals, objectives, outcomes, measures, resources, and an implementation framework to move the college successfully toward achieving its aspirations.
SUMMARY OF THE FIVE-PHASE PLANNING PROJECT
I. Vision, Project Planning, and Launch (June–July 2014): Affirm the project plan, form the steering committee, develop the engagement and communications plan, announce the project, and create a special website to inform the community with project documents and progress reports. The project plan identified all activities, roles and responsibilities, timelines, milestones, and deliverables. The leadership team began the project by evaluating the college’s past, present, and future reality; the educational landscape context; and future opportunities.

II. Strategic Planning (July–August 2014): Data gathering and analytics and the launch meetings of the leadership team and steering committee. The Napa Group reviewed relevant internal and peer data, analyzed trends in public higher education and engineering education, and developed reports that described the future environment for engineering education and research, and provided comparative data on institutional peers. The leadership team and steering committee considered the data and proposed a strategic planning project concept paper with a vision, mission, core values, and strategic intents — the headline themes and the rationales behind them — for broader discussion by the College of Engineering community once classes began in the fall term.

III. Assess, Build Out, and Validate (September–November 2014): All-college breakfast, faculty engagement/retreats, staff focus groups, all-college survey, task forces to develop goals and objectives, and engagement of industry boards. Dean Ashford briefed College of Engineering faculty and staff about the project and activities to date at the all-college breakfast at the beginning of the academic year in September. A strategic planning concept paper was prepared to describe early thinking and to engage the college community in broader discussions about strategic planning themes and issues. During the school retreats, faculty provided input and feedback on the early plan framework, which, along with staff focus groups and a faculty-staff survey, guided further development of the plan. Nearly 45 percent of faculty and staff participated in the surveys. Four task forces, one per strategic intent, engaged 49 members of the community — faculty, staff, and students — to recommend goals and objectives that would advance the strategic intents. The leadership team and steering committee met jointly to converge all the input into a plan framework.

IV. Goals Finalized and Stakeholders Engaged (November–December 2014): Plan drafts and priority action items. The leadership team developed drafts of the plan, which re-engaged the task forces to assist in defining the action items, timelines, metrics, and priority activities for the first 24 months. These were viewed against a business plan framework and potential budget.

V. Project Completion (December 2014–April 2015): Final plan with implementation timeline, budget, and dashboard. In January, the leadership team and steering committee met to finalize the plan, align around priorities, and affirm performance goal statements that would guide planning outcomes and communicate the plan’s successful implementation. The implementation framework and budget were finalized, and the plan was readied for launch on May 1, 2015.
THE STRATEGIC PLAN
VISION
To create a better future

MISSION
The College of Engineering transforms lives and enhances society through impactful education and research. In an inclusive and open environment, we produce:

• Graduates who are highly valued and in demand.
• Solutions to global challenges.
• Partnerships that ensure responsiveness to Oregon and beyond.

CORE VALUES

• Excellence: Our excellence is derived from a persistent commitment to hard work, diligence, perseverance, and consistency in the pursuit of the highest quality in whatever we do.
• Collaboration: We value engagement and connection at multiple levels in our professional lives — including work relationships, research, scholarship, service, and teaching — and believe that collaboration is an important element of our professional success.
• Integrity: An uncompromising commitment to honesty underlies everything we do.
• Innovation: We value and support each other in taking risks, and we strive to create economic and societal value.
• Respect: We respect one another in an environment in which we value, consider, and are influenced by others’ feelings and perspectives.
• Responsibility: We recognize and embrace our role in the stewardship of our students, colleagues, and Oregon’s citizens.
GOALS AND OBJECTIVES

BECOME A RECOGNIZED MODEL AS AN INCLUSIVE AND COLLABORATIVE COMMUNITY.
1. Envision, develop, and resource the infrastructure and communication systems to promote, sustain, and celebrate this culture and community.
2. Live the experience in all interactions across the college daily; dedicate resources to training faculty, students, and staff to realize, honor, and sustain this culture throughout the college.
3. Purposefully and thoughtfully recruit and retain a more broadly diverse community.

PERFORMANCE GOAL STATEMENT FOR COMMUNITY:
By 2020, the College of Engineering is recognized as a national model of inclusivity and collaboration, as evidenced by:
• A well-disseminated model of success that is sought out by others.
• A community of faculty, students, and staff that is increasingly more inclusive, collaborative, diverse, and centered on student success.
• Fully operational and integrated infrastructure, training, education, and communication systems that support our model throughout the college.

PROVIDE A TRANSFORMATIONAL EDUCATIONAL EXPERIENCE THAT PRODUCES GRADUATES WHO DRIVE CHANGE THROUGHOUT THEIR LIVES.
1. Transform student success through impactful learning experiences.
2. Transform College of Engineering curricula for the needs of the future.

PERFORMANCE GOAL STATEMENT FOR EDUCATION:
By 2020, the College of Engineering provides a transformational educational experience that produces graduates who drive change throughout their lives, as evidenced by:
• Increased student access and student success such that any engineering student achieving proficiency in pre-core courses may enroll in the professional engineering major of their choice.
• Curricula that are recognized as innovative and progressive by a broad spectrum of stakeholders.
• Highly sought after engineering graduates who continue to broadly demonstrate high levels of professional and technical abilities.
LEAD RESEARCH AND INNOVATION TO DRIVE BREAKTHROUGHS THAT CHANGE THE WORLD.

1. Invest in, build out, promote, and advance research areas in three categories:
   i. Signature research areas to address key global challenges: precision health, clean energy, resilient infrastructure, and advanced manufacturing.
   ii. Information technology to provide a stronger foundation for all research activities.
   iii. Targeted strategic areas with existing competitive advantages: robotics, materials research, and clean water.
2. Obtain large externally funded research centers.
3. Realize and foster a collaborative, interdisciplinary, and creative research environment.
4. Increase research productivity of tenured, tenure-track, and research faculty.
5. Promote excellence in research by recruiting and supporting high-quality graduate students.

PERFORMANCE GOAL STATEMENT FOR RESEARCH:
By 2020, the College of Engineering leads research and innovation to drive breakthroughs that change the world, as evidenced by:
   • National recognition as a leader in at least two of our signature research areas, resulting from two externally funded research centers.
   • Increased impact through a broad and deep research program supported by growth in faculty proposal submissions, research grants, citations, and conferred graduate degrees.

ESTABLISH THE COLLEGE OF ENGINEERING AS THE PARTNER OF CHOICE FOR INDUSTRY, GOVERNMENT, AND ACADEMIA.

1. Demonstrate college-wide practices to maintain and grow the college’s reputation as Oregon’s engineering education and research partner of choice for Oregon, the Pacific Northwest, and global industry and economic sectors.
2. Implement a strategic calendar of efforts to increase the political influence of the College of Engineering in state and federal funding streams.
3. Design curricula that are responsive to industry technology, workforce development direction, and speed of advancement.

PERFORMANCE GOAL STATEMENT FOR PARTNERSHIPS:
By 2020, the College of Engineering is considered the partner of choice among internal and external partners, as evidenced by:
   • Strategic partnerships with industry, government agencies, and Oregon State entities that provide mutual benefit to all parties involved. Our strategic partners will be champions on our behalf due to their positive partnership experiences with the College of Engineering.
   • Demonstrated growth in philanthropic, industry, state, and federal funding through strategic partnerships.
Effective May 1, 2015, the strategic plan will launch with the first 24 months of actions in support of the plan’s five-year framework and planned budget resources. An online dashboard with key performance indicators and metrics will track, measure, and communicate the plan’s progress and success.

The strategic plan provides the vision that guides budgetary priorities for the college over the next five years. Maintaining our core strengths as we undertake new initiatives will require both new resources and the redirection of current resources. We will not achieve our vision without investing in students, staff, faculty, and infrastructure.

The redirection of current resources plays only a modest role in achieving the vision put forth in the strategic plan. Increased budgetary allocation from central administration and the generosity of our alumni and friends will play the critical role in reaching the future envisioned in the plan. Specifically, student growth, together with the implementation of a new university budget allocation model, will provide the college with resources for new staff and faculty. The generosity of our donors will play a significant role in building the infrastructure required to accommodate the planned growth. Additionally, their support will continue to extend to endowments to support students and faculty.