



EVER 150 YEARS TRUE  
THE CAMPAIGN FOR PURDUE UNIVERSITY

PURDUE COLLEGE OF ENGINEERING STRATEGY FOR IMPACT 2009-2016

E X T R A O R D I N A R Y

PEOPLE  
GROWTH  
IMPACT

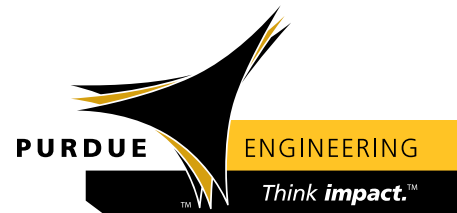
*We will be known for our  
impact on the world*

**PURDUE**  
ENGINEERING

# DEAR PURDUE ENGINEERING FRIENDS,



**LEAH H. JAMIESON**  
The John A. Edwardson Dean of Engineering



In 2009, the College of Engineering announced its strategic plan, *Extraordinary People, Global Impact*. This plan sets aside business as usual and calls on the creativity and drive of our people — faculty, students, staff, alums, and friends — pursuing individual passions and shared goals. Through these efforts, we, Purdue Engineering, *will be known for our impact on the world*.

Since 2009, some remarkable, indeed game-changing, opportunities for strategic growth and expansion have occurred:

- In 2012, Purdue's Board of Trustees endorsed a five-year plan for a landmark investment in the College of Engineering, prompted by significant growth in our undergraduate and graduate enrollments and in our research enterprise, and spurred by the national call for the U.S. to graduate 10,000 more engineers a year.
- In 2013, President Mitch Daniels launched the Purdue Moves initiatives, a set of big ideas — and now a major component of *Ever True: The Campaign for Purdue University* — that will drive innovation, achievement, and growth across the university and differentiate Purdue as one of the true STEM capitals of higher education. A key Purdue Move is the expansion of the College of Engineering, a move that builds on and broadens our earlier plan and accelerates the pace of change.

From this opportunity for dramatic growth has sprung this document: our new strategy for impact, *Extraordinary People, Extraordinary Growth, Extraordinary Impact*. It's a fusion of the concepts *strategic plan* and *strategic growth*. Our strategic plan — our polestar — guides us as we engineer transformational change. Our strategic growth complements, leverages, and intertwines with that plan, amplifying its success.

In these pages, you will find the broad strokes of our plan for strategic growth, in the context of the strategic plan elements inspiring that growth. Our expansion plan will make Purdue Engineering one of the largest engineering colleges in the nation, an exciting achievement in its own right. But if all we can say after the plan's execution is that we're bigger, we will have missed a tremendous opportunity. Our blueprints for strategic growth are focused on making us *better* — bringing transformational change, sharpening our focus even as we grow, accelerating and amplifying our impact on the world.

We invite you to join us on the journey. We could not engage in this unprecedented opportunity without you, and we are deeply grateful for your support, enthusiasm, and goodwill.

**LEAH H. JAMIESON**  
The John A. Edwardson Dean of Engineering

# Strategic Plan

ONE VISION, THREE GOALS, FOUR STORIES

## ONE VISION

We will be known for our impact on the world.

## OUR MISSION

To advance engineering learning, discovery, and engagement in fulfillment of the land grant promise and the evolving responsibility of a global university.



## THREE GOALS

### > GRADUATES EFFECTIVE IN A GLOBAL CONTEXT

Our graduates will be prepared for leadership roles in responding to the global technological, economic, and societal challenges of the 21st century.

### > RESEARCH OF GLOBAL SIGNIFICANCE

We will focus our talent and facilities on research with great potential for expanding the boundaries of science and technology and addressing the global challenges and opportunities of the 21st century.

### > EMPOWERING OUR PEOPLE, ENRICHING OUR CULTURE

We will create a leadership culture and environment where the people of Purdue Engineering can dream their boldest dreams and collaborate in a place where those dreams can become reality.

## FOUR STORIES

Over 400 faculty, staff, students, alumni/ae, and friends around the globe helped conceive and articulate the substance of our journey. Four stories capture the essence of our plan:

Always | [ChangeTheWorld](#) | [Innovate](#) | [OurPeopleOurCulture](#) | [@PurdueEngineering](#)



# DRIVERS FOR STRATEGIC GROWTH: WHY ARE WE GROWING?

Engineering is crucial to innovation, economic development, and jobs creation, and engineering is crucial to addressing the “grand challenges” facing our world in the 21st century: sustainability, energy, healthcare, security, the frontiers of exploration, and quality of life.



In 2011, the U.S. President’s Council on Jobs and Competitiveness called for colleges and universities to graduate an additional 10,000 engineers a year — engineers who will drive the innovation economy and fuel the United States’ competitive advantage in the global marketplace.

Purdue is taking bold action to be a significant part of this national imperative. The College of Engineering has seen growth year after year in student applications and enrollment. From 2010 to 2015, applications increased 79%. In that time, the percentage of beginning engineering students who were in the top quartile of their high school graduating class rose from 88% to 95% — meaning that both the number and quality of future Purdue engineers are on the rise.

Through our planned growth, we will educate a greater number of creative engineers who are equipped to lead in an ever-changing, highly technical workforce. We will increase our capacity for groundbreaking discoveries through research. And we will bring even greater economic benefit to Indiana, the country, and the world.

Guided by our strategic plan, we will keep and enhance the best of what has always made Purdue great, as we create a new College of Engineering enabled by our growth.

## PARAMETERS OF THE STRATEGIC GROWTH INITIATIVE

With carefully planned increases in students, faculty, staff, and space, Purdue Engineering will grow in strategic ways that impact how we educate, how we innovate, how we hire professors, and how we use facilities to enable new learning and discoveries.

- By 2016, Purdue Engineering will grow by 1,500 students, half undergraduate and half graduate, to reach an enrollment of over 7,750 undergrads and 3,500 grads. This represents a five-year increase of 15% and a 10-year increase of over 35%.
- From 2011 to 2016, the college will add as many as 107 new faculty members, going from 358 to 465 — a 30% increase.
- Up to 105 staff will be added — also a 30% increase.
- Eighty-eight half-time teaching assistants will be added to support the increased number of undergraduates.
- Our space needs have been rethought from scratch. We will reenvision, repurpose, renovate, and in some cases build new in order to add 220,000 assignable square feet and gain 50% more efficiency through renovation of existing spaces.

## ALWAYS

@PurdueEngineering

We will create and sustain the human, intellectual, and information infrastructures to connect people and Purdue for life.

## IMAGINE...

- ...being young and getting your first glimpse of what engineering is all about.
- ...going to college and choosing from a palette of engineering experiences.
- ...tailoring your PhD to your dreams and aspirations.
- ...connecting to Purdue through a unique umbilical cord — a two-way lifeline — throughout your changing career so you continue to learn and grow professionally and share your life-earned wisdom with faculty and future alumni/ae.

## WE HAVE SET THE STAGE FOR LIFELONG IMPACT:

- The School of Engineering Education, the INSPIRE Institute for P-12 Engineering Research and Learning, EPICS High.
- Purdue’s Engineer of 2020 initiative and Global Engineering Program.
- Minority Engineering and Women in Engineering programs.
- First-Year Engineering’s Ideas to Innovation (i2i) Learning Lab.
- Engineering Professional Education’s lifelong learning programs.
- The HUB cyberinfrastructure that extends our virtual reach.

## OUR KEY ACTIONS:

- Create the signature foundational pedagogy for P-12 engineering education.
- Integrate the Purdue Engineer of 2020 learning outcomes into the curriculum — in addition to strong fundamentals, career skills such as interdisciplinary design, leadership, innovation, multicultural aptitude, flexibility during change, entrepreneurship, and ethics.
- Prepare today’s graduate students to be tomorrow’s Faculty of 2020.
- Strengthen and evolve international experiences and dual-degree programs.
- Design interdisciplinary professional master’s programs, personalized relevant PhD programs, and expanded avenues for career-long learning.

*Strategic Plan*



Students in the College of Engineering Honors Program build robots that must navigate a specific path.



# ChangeTheWorld

@PurdueEngineering

We will reshape our research universe and bring solutions to the globe.

## IMAGINE...

...faculty and students whose research shapes the world — tackling problems from the nanoscale to the scale of space exploration and from biofuels to biomechanics to biodiversity.

...faculty who are connected not only to the technology but to the implications of that technology on our economy, our built infrastructure, human development, national security, and international relations.

...research strengthened by deep partnerships with industry, federal agencies, and national and international labs.

## WE HAVE SET THE STAGE FOR RESEARCH IMPACT:

- Growth in our senior-most faculty and interdisciplinary signature areas.
- New facilities in Discovery Park and Engineering: Birck, Bindley, Mann, Forney, Bowen, Jischke, Armstrong, Gatewood, Herrick, Wang.
- nanoHUB.org, which supports unprecedented sharing of research tools.

## OUR KEY ACTIONS:

- Create a Systems of Systems Institute to lead the world in understanding intricate connections — in healthcare, energy, aerospace, transportation, defense, and more.
- Provide high-quality lifecycle support by placing researchers at the heart of research galaxies with unique professional structures, agile space repurposing, flexible staffing to launch large-scale projects, and reclassifying of jobs to meet the needs of grand-scale research.
- Double research productivity and increase our voice in setting the national research agenda.
- Enrich our collaborations by growing global fellows and exchange programs.
- Use the Web effectively to share our research story more widely.

Strategic Plan



EPICS students collaborate on a project in Armstrong Hall.

# EXPANDING ENGINEERING: BOLD GOALS FOR IMPACT

We aspire to contribute to the strength of Purdue University and address critical national and global challenges through the following eight goals:

- 1 Contribute to increasing the national capacity for innovation and economic development**  
With a growth in enrollment of over 1,500 students, by 2016 Purdue will graduate more than 5%, or 1 in 20, of the 10,000 more engineers a year called for by the U.S. President's Council on Jobs and Competitiveness.
- 2 Amplify our impact**  
Our larger student body, faculty, and staff will enable more groundbreaking discoveries and more inventions delivered to market.
- 3 Enhance our students' experience**  
Improving the student-to-faculty ratio from 21.2 to 17.6 will enhance the quality of interactions between faculty and students.
- 4 Increase our diversity**  
Diversity is a core value of the College of Engineering: the quality of our innovation is directly tied to the diversity of the people who sit around our table. Faculty hiring and student growth at this scale are opportunities to make dramatic and transformational gains in our diversity.
- 5 Expand our capacity for innovation in engineering education**  
Purdue is positioned to become *the* world leader in demonstrating how hands-on experiential learning can happen *at scale*.
- 6 Sharpen the focus on what Purdue Engineering is known for**  
Faculty are the centerpiece of our expansion: they define who we are and who we will become. Over the course of our strategic growth, we will hire faculty through a number of approaches, including traditional disciplinary hiring, cross-college cluster hiring, and recognizing "rising star" mid-career professors. A key component of our faculty hiring is the building of preeminent teams that will incorporate the best attributes of the entrepreneurial world — agility, responsiveness, and energy — and position Purdue for recognized leadership in research of global significance.
- 7 Expand engagement**  
Purdue will become the partner of choice for industry, the university of choice for entrepreneurs, and the national model for statewide economic development.
- 8 Enhance the reputation of the College of Engineering and of Purdue**  
Our growth will enhance the reputations of both the college and university.

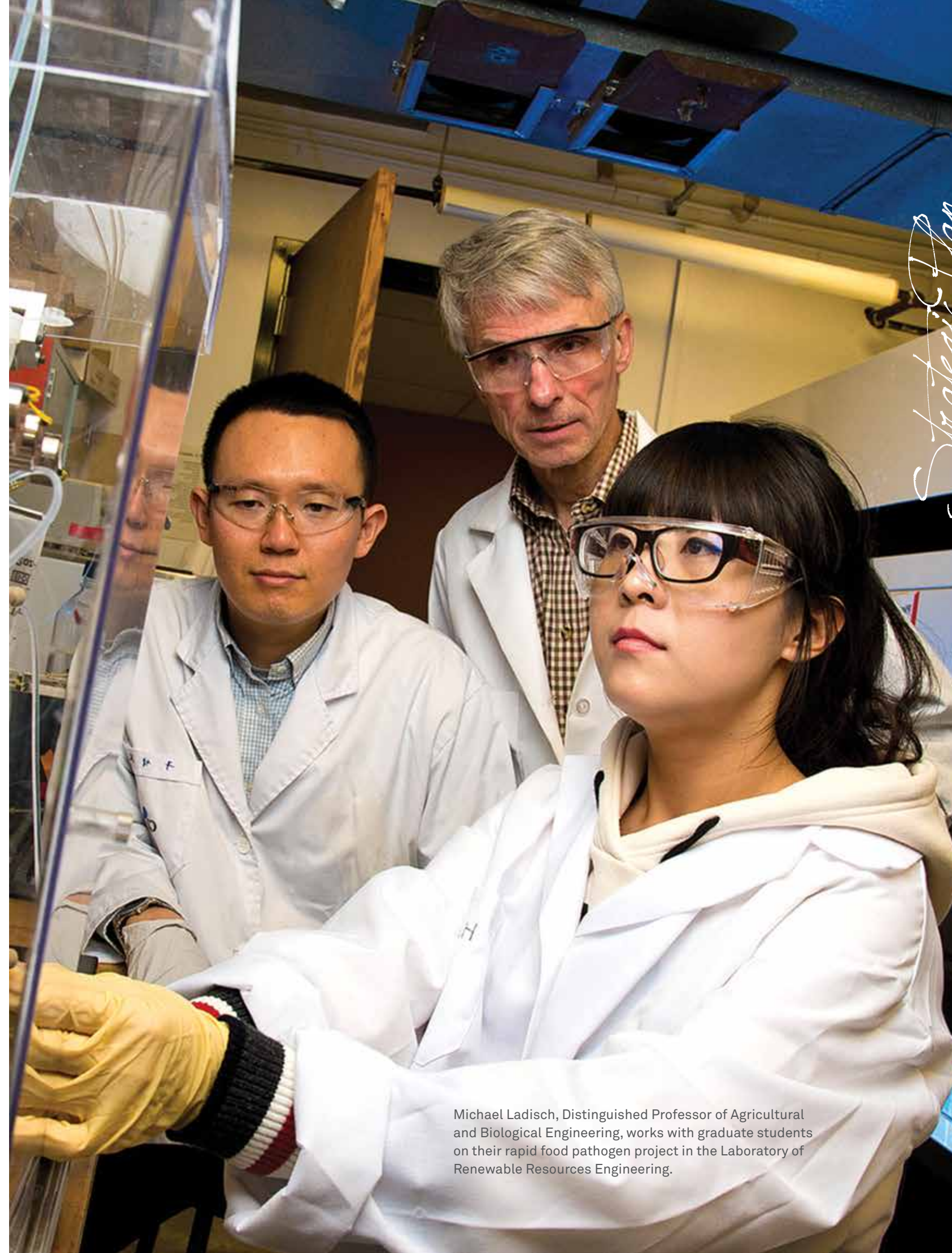


## PRINCIPLES GUIDING OUR

# STRATEGIC GROWTH

As we move forward with our strategic growth initiative, Purdue Engineering must remain flexible in order to seize opportunities as they arise. What will remain constant, however, are the principles that guide us:

- Strive for transformational change
- Contribute to the missions of learning, discovery, and engagement
- Plan for the long-term future
- Use growth as an opportunity to broaden our diversity
- Improve quality
- Inform decisions by data
- Generate creative opportunities for growth
- Ensure resources for sustainable growth
- Have a positive impact on the climate for the whole college
- Be inclusive in our discussions and decision-making
- Promote and leverage significant gift funding
- Provide economic benefit to the state and its citizens



Michael Ladisch, Distinguished Professor of Agricultural and Biological Engineering, works with graduate students on their rapid food pathogen project in the Laboratory of Renewable Resources Engineering.

*Strategic Plan*

## INNOVATE

@PurdueEngineering

We will build an innovation ecosystem and nurture a culture of creativity that takes us far beyond where we are today.

### IMAGINE...

- ...an environment where collaborations cut across disciplines in unexpected ways.
- ...a place where agile, fluid teams tackle specific problems or grand-scale long-term challenges.
- ...Purdue Engineering as the destination for students and world-class faculty who want to solve problems through risk-taking research and a fearless search for answers — and through entrepreneurship, spur economic development and benefit society.
- ...deliberately pursuing research creativity through a new model for innovation and collaboration.

### OUR KEY ACTIONS:

- We envision a three-layer innovation ecosystem that will change our traditional research culture to one that connects creativity and risk-taking to high-impact outcomes and engagement.
- The base layer is the idea zone, where an “innovation institute” and “skunkworks” environment provide resources, rewards, and recognitions that foster creativity and intellectual risk.
- The middle layer is the collaboration zone or “collaboratory” to connect dynamically the appropriate human assets for the topic of interest — internal actors (faculty, staff, and students) with external actors (national labs, policy bodies, etc.). A lean centralized staff plus agents — “matchmakers” — within the schools facilitate, catalyze, and launch interdisciplinary teams and support activities such as “Talks in Plain English” to build bridges across disciplines.
- The top layer is the exchange zone, where we touch the world and amplify our impact by building deep, sometimes sole-source partnerships with industry, defense agencies, policy bodies, and global labs and governments.



## ENGINEERING EXPANSION: A PURDUE-WIDE OPPORTUNITY

Engineering's expansion marks a singular opportunity for Purdue University:

- Building the reputation of both the college and the university
- Reinforcing the Purdue Moves theme of STEM excellence
- Pioneering new approaches to faculty hiring
- Exploring high-quality, work-efficient, energy-efficient, flexible, and collaborative space in an academic setting
- Leading in demonstrating how experiential education can be done at scale
- Gaining preeminence through research collaborations
- Grounding all these outcomes in innovation and impact



Students work together on a design project in one of the seven studio and lab spaces that comprise the Ideas to Innovation (i2i) Learning Laboratory in the basement of Neil Armstrong Hall of Engineering.

Strategic Plan

## OurPeopleOurCulture

@PurdueEngineering

We will engage our people to transform our culture, because empowered people radiate passion that energizes them to change the world.

### IMAGINE...

- ...having the courage — *the sheer guts* — to revolutionize our culture.
- ...an environment that supports boundless thinking.
- ...a place where all individuals can dream their farthest-reaching dreams — and know that their institution wants to help realize those dreams.
- ...a culture that facilitates all of our stories.

We have set the stage for a lead-the-world infrastructure: In the past decade we proved we can do things differently — we branched out deliberately and across disciplines; we competed successfully on the national stage. We have shown that we are ready to change our culture to allow us to make the next giant leap forward.

### OUR KEY ACTIONS:

- Take a lesson from our first-year student programs and create a learning community for new faculty.
- Build our capacity for leadership sabbaticals and fellowships and create an Influencers in Residence program.
- Support our research ambitions by launching a highly effective post-award process; creating mental space via research semesters, team teaching, and banking research credits; and developing the “Staff of 2020.”
- Create a Center for Diversity to foster new synergies and a Diversity Certificate for faculty and staff professional development.
- Better align our hiring and promotion and tenure practices with our values.
- Assess our progress using external reviews and a semesterly report card.



INVESTING IN  
OUR GROWTH,  
INVESTING IN  
OUR DREAMS

## StrategicGrowth

@PurdueEngineering:

**\$150M+**

Purdue is making a significant investment in the College of Engineering to support the dramatic growth in our faculty, staff, undergraduate and graduate student numbers, and our facilities — a comprehensive expansion that is a cornerstone of both the Purdue Moves and *Ever True: The Campaign for Purdue University*. Engineering's goal of \$700 million for the campaign includes \$150+ million for our strategic growth initiatives for student support endowments, professorship endowments, and enhanced facilities. The College of Engineering will reach the full magnitude of the transformational growth we are striving to achieve only by partnering with our alumni/ae, friends, and corporate and foundation partners. With the help of **extraordinary people** like you, we can build on the university's investment to achieve **extraordinary growth** and **extraordinary impact**.



### New Student Support Endowments

> **Endowed Undergraduate Scholarship - \$25,000+**

As the College of Engineering competes for top students at the undergraduate level, endowed scholarships (minimum of \$25,000) remain essential to building and sustaining quality and diversity.

> **Endowed Graduate Fellowship - \$50,000+**

Attracting outstanding graduate students enables first-class research and education and bolsters the reputation of the College of Engineering, which in turn attracts high-quality faculty and research funding. A minimum endowment of \$50,000 will provide partial support for a graduate student; a suggested endowment is \$100,000. A minimum endowment of \$1 million is needed to provide full support for a graduate student.

### New Professorship Endowments

> **Endowed Professorship - \$1.5M+**

Over its long history, Purdue has been a prime example of how faculty — through exceptional teaching and innovative research — have brought distinction and recognition to the university. Endowed professorships will help attract and retain top faculty in perpetuity.

> **Rising Star Faculty Endowment - \$500,000+**

Designed to recognize, retain, and recruit “rising star” faculty members, this is a prime opportunity to acknowledge the achievements of mid-career associate professors and full professors who have distinguished themselves among their peers but are not yet candidates for full-term named professorships. Recognizing faculty in this stage of their careers is especially critical for retention, since these individuals are frequently recruited by other institutions. This will also provide a competitive edge in recruiting outstanding candidates to Purdue during the College of Engineering's strategic growth.

### Enhanced Facilities

World-class education and world-changing research require world-class facilities. Bold renovations — more akin to transformations of existing spaces — will create high-tech active-learning spaces and will enable research spaces that foster interdisciplinary, collaborative research, house state-of-the-art equipment, and support Purdue's entry into emerging areas. Projects include a new flexible research lab facility, expansions of the Martin C. Jischke Hall of Biomedical Engineering and the Zucrow Labs, equipment and facilities support for preeminent teams, and renovation/transformation of core spaces in the Electrical Engineering and Mechanical Engineering buildings, the Delon and Elizabeth Hampton Hall of Civil Engineering, Grissom Hall, and the Potter Engineering Center.

**continued >**



INVESTING IN OUR **GROWTH**, INVESTING IN OUR **DREAMS**

## EVER TRUE: THE CAMPAIGN FOR PURDUE UNIVERSITY

### College of Engineering Goal: **\$700M**

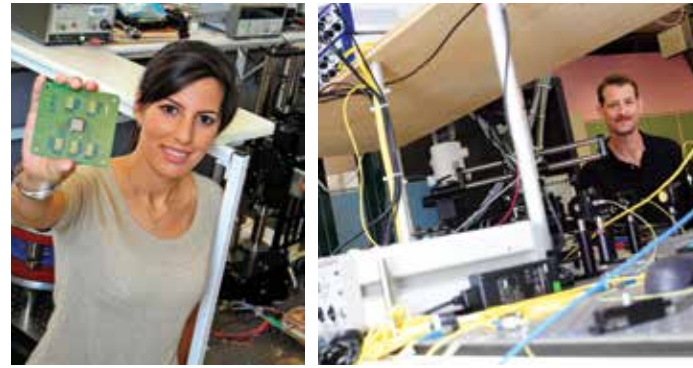
Purdue's *Ever True* campaign began on July 1, 2012, and was announced publicly on October 9, 2015. The goal: \$2.019 billion by 2019, including \$700 million for the College of Engineering. The year 2019 marks Purdue's 150th anniversary and the 50th anniversary of Neil Armstrong's landing on the moon. Encompassing the strategic growth initiatives (\$150+ million) listed on page 10, the College of Engineering's five campaign initiatives are these:

#### Students

We rely on scholarships and fellowships for qualified students who require financial assistance to pursue their education. Endowed scholarships and fellowships are critical to the College of Engineering as we continue our commitment to recruit and retain the most promising, creative, and diverse student body.

#### Faculty

World-class faculty are at the heart of the College of Engineering. Endowed professorships, including those for early- to mid-career "rising star" faculty (see page 11), help us attract and retain premier faculty members. A very special component of our faculty hiring is building and supporting preeminent teams in research areas of great potential for world-changing impact — as determined by a competitive, entrepreneurial selection process.



#### Programs

Purdue Engineering maintains a Top -10 ranking because of excellent faculty, students, staff, and pioneering programs that enhance our students' experience, including First-Year Engineering, EPICS, Global Engineering, Honors, Leadership, Engineering Professional Education, Professional Practice/Co-Op, the Indiana Space Grant Consortium, Minority Engineering, and Women in Engineering. In every case, philanthropy has helped sustain them and fueled their achievements and progress.

#### Facilities

New and redesigned spaces allow us to recruit and retain top students and faculty. The reinvention of the 100-year-old Grissom Hall and the new Seng-Liang Wang Hall reflect the ways we will learn and work for decades to come. These transformational spaces are creating digital, active, and collaborative learning spaces and fostering interdisciplinary research that takes us into emerging areas. We seek your support as we expand the Martin C. Jischke Hall of Biomedical Engineering and transform core spaces in the Electrical Engineering and Mechanical Engineering buildings, the Delon and Elizabeth Hampton Hall of Civil Engineering, and the Potter Engineering Center.

#### Unrestricted

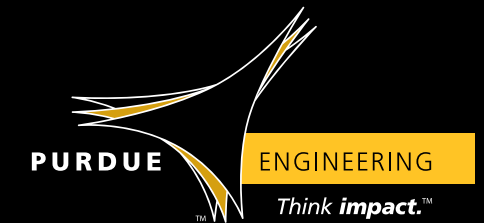
Responding nimbly to technological and societal changes means embracing opportunities and addressing challenges when they arise. Unrestricted funds provide the college leaders the flexibility to seize unforeseen opportunities, answer urgent needs, and support emerging dreams. We invite you to partner with us by supporting these essential discretionary resources.



Our strategy for impact is a bold roadmap for achieving the dreams of the faculty, staff, students, and alums of Purdue Engineering.

**JoinTheAdventure**

[WWW.ENGINEERING.PURDUE.EDU](http://WWW.ENGINEERING.PURDUE.EDU)







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E X T R A O R D I N A R Y

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