Preamble

The Purdue School of Engineering and Technology at IUPUI has an outstanding tradition of serving the workforce and technological needs of the Indianapolis metropolitan area and Central Indiana. The School has produced several notable outcomes since publishing our last strategic plan in 2012 to broaden the impact of our core mission in teaching, research and creative activities, and community engagement throughout Indiana and beyond. For example, since 2012 we increased the number of undergraduate degrees awarded annually in engineering by 57% and graduate degrees by 89%. We increased the diversity of our students with headcount gains of 110% for international students and 50% for traditionally underrepresented students in STEM. We also increased by 49% the number of students pursuing dual-degree programs with our institutional partners. Faculty from our School submitted 152 invention disclosures and 165 patent applications, and either created or co-created 10 start-up companies. We also received inaugural accreditation from ABET for our innovative programs in energy engineering, motorsports engineering, and healthcare engineering technology management and created IUPUI site-approved Ph.D. programs in engineering and music technology.

Our School is now ranked among the Top 100 of those schools granting the doctoral degree in both the undergraduate and graduate schools rankings by U.S. News and World Report. The School is well-positioned to assertively move forward to achieve higher levels of excellence and impact in key focus areas, with the goal of being regarded as one of the premier urban engineering and technology schools in the nation.

The plan that follows includes a set of initiatives to help focus attention and resources to create a sense of strategic direction for the School. The plan is not intended to cover all of the operational activities of the School or to diminish goals, accomplishments, or other initiatives that may not be explicitly cited. The fundamental purpose of our strategic plan is to accelerate progress toward achieving distinction and differentiation in areas of specific strength or potential, while capitalizing on our tradition, prior investments, and location.

We appreciate your interest and your involvement in shaping the future of our School. With the help of our alumni, industry partners, and friends, we will continue to successfully compete at the highest levels, achieve excellence in our core mission, and enhance our image and reputation. We look forward to sharing with you the progress we are making with each of our initiatives.

David J. Russomanno, Ph.D.
Dean
Vision, Mission, and Values

Vision
The Purdue School of Engineering and Technology at IUPUI will be regarded as one of America’s premier urban schools of engineering and technology, recognized regionally, nationally, and internationally for its excellence in teaching and learning, research and creative activities, and community engagement.

Mission
The Purdue School of Engineering and Technology at IUPUI serves the greater Indianapolis metropolitan area, the State of Indiana, and the nation by providing a high-quality learning environment informed through the discovery and dissemination of knowledge via the scholarship of teaching and learning, research and creative activities, and community engagement. We embrace diversity and inclusion as essential elements to sustain excellence.

Values
The core values that define, inform, and guide the decisions within our School are as follows:

Excellence:
Academic excellence is our top priority. We pursue excellence in learning, teaching, research and creative activities, and community engagement as the highest indicators of successful achievement.

Competition:
Competition enhances innovation. We strive to compete at the highest levels in the pursuit of extramural support for our students, as well as for our research and creative activities.

Collaboration:
We promote teamwork, partnerships, and intergroup dialog for discussing and solving problems and disseminating and transferring knowledge, thus multiplying our accomplishments.

Diversity:
We value diversity in all of its forms in our research, curricula, and pedagogy and in our faculty, staff, and student composition.

Leadership:
We encourage and reward effective leadership at every level in the School.

Location:
We are fortunate to be located in the vibrant city of Indianapolis and we strive to capitalize on the urban setting to address the challenges of a global society.

Professionalism:
We foster and reward high standards of collegiality and integrity.

Responsiveness:
We are committed to community and professional service to meet the needs of our stakeholders.

Improvement:
We strive to continuously improve the implementation of our mission through efficient assessment and evaluation processes.

Identity:
We take pride in the Purdue University and Indiana University affiliations, while striving to advance the IUPUI campus identity, image, and reputation.

Process and Initiatives
The process to revise the strategic plan began in the fall of 2017 with the dean reaffirming the charge to:

- Compete at the highest levels;
- Strive for excellence in core mission; and
- Enhance image and reputation.

A workshop consisting of the Dean’s Industrial Advisory Council (DIAC), department chairs, associate and assistant deans, research center directors, representatives from the School’s Faculty Senate and Staff Council, and other stakeholders was conducted to produce a strengths, weaknesses, opportunities, and threats (SWOT) assessment. Background context included the following: i) Indiana University’s Bicentennial Strategic Plan; ii) IUPUI’s Strategic Plan; iii) the School’s 2012-2017 Strategic Plan; and iv) the IUPUI Diversity Plan.

Subsequent to the SWOT assessment, task forces were created with a broad representation of faculty and staff from within and external to the School. The charge to the task forces was to:

1. evaluate accomplishments in the focus area;
2. recommend actions, operational details, and metrics to monitor progress; and
3. recommend high-level language for revisions to the 2012-2017 plan.

Department chairs, associate and assistant deans, and other faculty and staff from the School reviewed a draft version of the new plan reflecting feedback from the task forces. A collection of cross-cutting themes emerged and were provided as input to the DIAC. Finally, the updated draft of the plan was released to several additional stakeholders for additional input before publication of the final version of the strategic plan.

The new plan is organized around six strategic areas, which support the overall IUPUI campus mission:

- Undergraduate Programs;
- Research, Creative Activities, and Graduate Programs;
- Community Engagement;
- Internationalization;
- Diversity, Equity, and Inclusion;
- Best Practices

Several representative initiatives are described for each strategic area accompanied by actions to support the attainment of each initiative. Progress on each initiative will be evaluated through processes that identify, collect, and prepare data on assessment metrics. Relevant direct, indirect, quantitative, and qualitative measures will be used as appropriate. Subsequently, the assessment metrics will be evaluated via processes for interpreting the data and evidence accumulated through the assessment processes. Evaluation will determine the extent to which strategic initiatives are being attained. The strategic plan is intended to be dynamic, undergoing continuous refinement as a tool to communicate and evaluate the strategic direction of the Purdue School of Engineering and Technology at IUPUI.
Strategic Planning Process

**Purdue School of Engineering and Technology at IUPUI**

- **IU Bicentennial Strategic Plan**
  - Our Commitment to Indiana and Beyond

- **IUPUI Strategic Plan**
  - Engineering and Technology Strategic Plan
    - 2012-2017

- **IUPUI Diversity Plan**
  - 2016-2022

**Background Context**

**Task Forces**
- Diversity: Viability, Vitality, Education, Scholarship, Intergroup Relations
  - Diversity: Access and Success
  - Undergraduate Student Learning and Success
  - Graduate Student Learning and Success
  - Accelerate Innovation, Discovery, and Creative Activity
  - Advances in Health and Life Sciences
  - Community Engagement
  - Internationalization
  - Faculty and Staff Development

**Actions, Metrics, High-level language, Operational details**

**Chairs, Deans, and Directors**

**Strategic Plan Draft**

**Stakeholder Review**

**Strategic Plan 2018-2023**
1.0 Undergraduate Programs

Initiative
1.1. Excel in the delivery of instruction and the scholarship of teaching and learning

Action
1. Enhance our quality educational programs, as evidenced by external accreditation, program reviews, and feedback from stakeholders.
2. Improve curricula on a continuous basis to keep all offerings relevant and responsive to stakeholder needs.
3. Improve instructional delivery by increasing the number of instructors employing best practices for engineering and technology education.
4. Enhance the culture of excellence in teaching and scholarship of teaching and learning through the following:
   i. Increased support for excellence in teaching through professional development, recognition in the P&T process, and communities of practice in teaching.
   ii. Increased competitive proposal submissions in the areas of course, curriculum, and laboratory improvements, as well as innovative pedagogy, course delivery, and STEM education, innovation, and talent expansion.
   iii. Increased publications in peer-reviewed journals and other dissemination outlets dedicated to the scholarship of teaching and learning.
5. Measure activity and impact of the delivery of instruction and the scholarship of teaching and learning and link to the continuous improvement process.

Initiative
1.2. Increase recruitment, acceptance, retention, and graduation of well-qualified students

Action
1. Increase scholarships through gifts that make an impact in perpetuity, including increasing need-based aid.
2. Increase freshmen retention and 4-year and 6-year graduation rates among all student populations, including first-generation and those from underrepresented groups by leveraging high-impact practices.
3. Increase applications through recruitment of students from the greater Indianapolis area as well as states participating in the Midwest Exchange.
4. Increase the percentage of students who are members of the IUPUI Honors College or who pursue School-based Honors.
5. Increase the percentage of University College students who matriculate to School programs.

Vision
To be recognized as one of America’s premier urban schools of engineering and technology.

Themes
• Compete at the highest levels
• Strive for excellence in core mission
• Enhance image and reputation

Mission
Serve the greater Indianapolis metropolitan area, the State of Indiana, and the nation by providing a high-quality learning environment informed through the discovery and dissemination of knowledge via the scholarship of teaching and learning, research and creative activities, and community engagement.

Purdue School of Engineering and Technology at IUPUI Strategic Areas

1.0 Undergraduate Programs
Excel in the delivery of instruction, the scholarship of teaching and learning, advising, and student services to support extraordinary student success.

2.0 Research, Creative Activities, and Graduate Programs
Position the School as a pillar of the IUPUI research campus advancing strategic research foci, including health and life sciences, while offering relevant graduate programs of regional and national need.

3.0 Community Engagement
Expand role and value of the School as an Indiana economic development mechanism through productive partnerships with business/industry, government, community, and other academic institutions.

4.0 Internationalization
Strengthen existing and develop new international relationships through strategic partnerships.

5.0 Diversity, Equity, and Inclusion
Pursue excellence in our core mission by advancing a multi-faceted culture of diversity that seeks, values, and embraces diversity in all of its forms.

6.0 Best Practices
Invest in people and provide fiscal stewardship, effectiveness, and transparency in program investments and resource allocation to nurture and advance the School’s intellectual assets.
2.0 Research, Creative Activities, and Graduate Programs

Initiative

1. Support research foci that build upon faculty talent, established track records, and prior investments to achieve national recognition

Action

1. Leverage the IUPUI health and life sciences designation by enhancing the impact of the Biomechanics and Biomaterials Research Center (BBRC) and by strengthening capabilities for intra- and inter-School collaboration in cardiovascular engineering, molecular and functional imaging, neural engineering, and information and device technology.
2. Elevate the visibility and synergy offered through the Integrated Nanosystems Development Institute (INDI), with particular focus on nano-medicine and nano-energy applications.
3. Strengthen Indiana’s position as a leader in advanced manufacturing. Enhance automotive research capabilities, including autonomous vehicle research through the Transportation Active Safety Institute (TASI).
4. Elevate the visibility and synergy offered through the Richard G. Lugar Center for Renewable Energy (LCRE) to advance research in renewable and cleaner energy.
5. Support research and development broadly in the following: i) data analytics; ii) product lifecycle innovation; iii) on-line learning via the CyberLab; iv) information assurance and cybersecurity; and v) STEM education, innovation, leadership, workforce, and human resources development.

Initiative

2. Enhance infrastructure and collaboration

Action

1. Further develop shared and core facilities aligned with research foci.
2. Allocate administrative and technical human resources, as well as space, proportional to productivity and potential.
3. Support partnerships with organizations that can share resources, including space and equipment to advance alliances with industry partners.
4. Establish additional joint or secondary appointments within the School for faculty aligned with research foci, including incentivizing coordinated hires across departments within the School.
5. Increase seed funding, voluntary matching, and cost share to support work leading to highly competitive external proposals or to increase the impact of funded projects.

Initiative

2. Offer innovative graduate programs

Action

1. Expand graduate programs, certificates, and course offerings, which leverage faculty capabilities and interests, as well as demand from stakeholders.
2. Expand options, pathways, and programs of study for students seeking professional master’s degrees.
3. Extend the venue of delivery of programs through innovative methods, including on-line, on-site, and hybrid delivery modalities.
4. Ensure continuous improvement through the assessment and evaluation of all graduate programs, including external review.
**3.0 Community Engagement**

**Initiative**
3.1. Broaden the School’s engagement in economic development and the well-being of local, state, national, and international communities.

**Action**
1. Partner with the IUPUI Office of Community Engagement to enhance the organizational framework to facilitate community-based projects with non-profit or special populations to influence positive change, including partnerships with adjacent communities to stimulate urban relevancy and well-being.
2. Enhance resources for faculty to learn more about what activities may be classified as community engagement and mechanisms for describing the impact of those activities, including materials applicable for inclusion into P&T dossiers.
3. Enhance opportunities for students to increase activities involving community engagement in their programs of study.
4. Enhance external recognition through dissemination, including marketing about community engagement efforts and successes.
5. Track and promote the number of graduates that remain in Indiana after graduation and contribute to the economic vitality of the state.
6. Enhance the K-12 STEM pipeline through community engaged outreach to K-12 students and teachers.

**4.0 Internationalization**

**Initiative**
4.1. Strengthen existing and develop new international relationships through strategic partnerships

**Action**
1. Strategically coordinate and manage international activities to ensure alignment with IUPUI and overall Indiana University goals in partnership with the Office of International Affairs.
2. Ensure success of 1+1, 1+1.5, 2+2, 2+3, 3+2, and similar X+Y programs of study, as well as international student visitor/exchange programs, with high-quality academic institutions.
3. Expand partnerships with academic institutions whose programs align well with the School’s degree portfolio, especially with universities that have demonstrated commitment to engineering and technology through funding, scholarship, and service to international communities.
4. Create incentives for faculty and staff to leverage IU Gateways in China, Europe, India, and Mexico including: developing proposals to use Gateway facilities for workshops, presentations, and to establish and broaden connections and international reach.
5. Continue to pursue extramural funding opportunities for international research and service projects, which align with faculty expertise and interests.

**Initiative**
4.2. Enhance students’ global citizenship

**Action**
1. Ensure incorporation of curricular content with corresponding assessment plans such that every B.S. graduate demonstrates the attainment of student outcomes involving the application of engineering or technology solutions in a global context.
2. Ensure B.S. graduates demonstrate cultural competence, and knowledge of contemporary professional, societal, and global issues pertinent to the student’s program of study.
3. Create interactions between students at the School and at partner universities, through joint projects or visits.
4. Increase opportunities and scholarships for study abroad.

**Initiative**
2.4. Increase size of graduate enrollment, degree production, and program rankings

**Action**
1. Achieve a graduate-to-undergraduate student ratio that meets or exceeds our peers and selected aspirational peers.
2. Implement communication, marketing, and recruitment actions that increases awareness of programs, as well as the research and creative activity accomplishments of our faculty and students.
3. Increase graduate assistantship offers to highly qualified students earlier on in the recruitment year.
4. Increase mean GRE scores and the number of admissible applicants.
5. Increase annual total research expenditures and average research expenditures per tenure-track faculty member allocated for student support.
6. Increase number of Ph.D. students advised per tenure-track faculty member and the number of Ph.D. degrees granted per year. Decrease administrative impediments for students to pursue the Ph.D. degree.
7. Increase publications in peer-reviewed journals and top-tier conferences and associated impact factors.
5.0 Diversity, Equity, and Inclusion

**Initiative**

### 5.1. Enhance excellence through diversity, equity, and inclusion

**Action**

1. Recruit and retain diverse faculty and staff.
2. Increase the level of diversity in industrial advisory boards and the dean’s industrial advisory council and the level of their engagement in diversity matters.
3. Expand access to information, materials, and experiences for faculty and staff so they are better able to competently engage in an increasingly diverse world.
4. Expand type and quality of intergroup relations within the School and with campus partners, with strategies to encourage collaboration.
5. Improve internal and external perceptions of the School about climate and fairness, as well as a commitment to diversity, equity, and inclusion.

### 5.2. Increase access and success for underrepresented students

**Action**

1. Enhance programs to increase the success and retention of underrepresented students.
2. Enhance partnerships with local high schools to increase the pipeline of underrepresented students.
3. Increase the number of students who participated in summer outreach programs that pursue degree programs offered by the School.
4. Strengthen partnerships with the Diversity Enrichment and Achievement Program, 21st Century Scholars, and other relevant units on campus.
5. Pursue new partnerships with HBCUs that do not have degrees offered within our School to create additional 3+2 programs.

6.0 Best Practices

**Initiative**

### 6.2. Enhance fiscal stewardship, effectiveness, and transparency in program investments and resource allocation

**Action**

1. Adjust the School and departmental base budgets on an annual basis to better reflect revenue streams, growth, performance, and reoccurring obligations funded via cash.
2. Strive to increase departmental base budgets thereby decreasing unbudgeted expenditures at the School level and decreasing mid-year, ad hoc financial requests from departments and/or programs.
3. Leverage the strengths of shared governance, including ownership and responsibility for goals, initiatives, and actions among the faculty and staff.
### Dean's Industrial Advisory Council

- **Dave Acton**  
  Naval Surface Warfare Center
- **Jerry Arthur**  
  Grand River Aseptic Manufacturing (Retired)
- **Russ Atkins**  
  NiSource
- **Joe Bentley**  
  Indianapolis Power & Light Company
- **Stan Bentley**  
  Divsys International
- **Jason Bush**  
  AIT Laboratories
- **Cliff Campbell**  
  Campbell Consulting
- **Matthew Conrad**  
  Indiana Automotive Council
- **Carol Curran**  
  Phoenix Data
- **Daron Dryer**  
  Comlux America
- **Wayne Eckerle**  
  Cummins
- **Brian Heald**  
  Roche Diagnostics Operations
- **Dale Jacobs**  
  BSA Lifestructures
- **Joe Kitterman**  
  180 Skills
- **William Kienle**  
  Allison Transmission (Retired)
- **Cary Marston**  
  Cummins
- **Jill Mendoza**  
  i.d.o.
- **Neal Montour**  
  Belcan
- **John Moore**  
  Raytheon IIS
- **Cindy Munerol**  
  AT&T (Retired)
- **Vincent Newsom**  
  Delphi (Retired)
- **Chris O'Keefe**  
  Veisco Medical
- **Wayne Payack**  
  Stanley Security
- **Sam Reed**  
  BSA LifeStructures
- **Joerg Schreiber**  
  White Arrow Consulting
- **Thomas Stephens**  
  Raytheon IIS
- **Frank St. John**  
  Applied Engineering Services
- **Malcolm Thomas**  
  Rolls-Royce (Retired)
- **Steve Wellborn**  
  Rolls-Royce
- **J.W.(Jim) Wheeler**  
  PQR Energy
- **Brad Wuerch**  
  Sensory Technologies
- **Bruce Wylam**  
  Hunt Construction Group
- **Kevin Zaletel**  
  United Parcel Service

### Chairs, Deans & Directors

- **Sherri Alexander**  
  Assistant Dean for Finance and Administration
- **Karen Albrecht**  
  Associate Dean of Undergraduate Academic Affairs and Programs
- **Ed Bartani**  
  Chair, Department of Biomedical Engineering
- **Debra Burns**  
  Chair, Department of Music and Arts Technology
- **Jie Chen**  
  Chair, Department of Mechanical and Energy Engineering
- **Yaobin Chen**  
  Director, Transportation Active Safety Institute
- **Scott Deal**  
  Director, Tavel Center
- **Charles Feldhaus**  
  Chair, Department of Technology Leadership and Communication
- **Brian King**  
  Chair, Department of Electrical and Computer Engineering
- **Danny King**  
  Director, New Student Academic Advising Center
- **Jim Kippenbrock**  
  Director, Computer Network Center
- **Nancy Lamm**  
  Director, Freshman Engineering
- **Feng Li**  
  Chair, Department of Computer Information and Graphics Technology
- **Valerie Lim Diemer**  
  Director, Graduate Programs and Admissions
- **Razi Naim**  
  Executive Associate Dean for Research
- **David Russomanno**  
  Dean
- **Paul Salama**  
  Associate Dean for Graduate Programs
- **Peter Schubert**  
  Director, Richard G. Lugar Center for Renewable Energy
- **Terri Talbert-Hatch**  
  Associate Dean for Recruitment, Retention, and Student Services
- **Tami Tarpley**  
  Assistant Dean for Development and External Relations
- **Robert Weissbach**  
  Chair, Department of Engineering Technology

### Snapshot

#### UNDERGRADUATE PROGRAMS

- **Headcount (total)**: 2831
- **BS Degree Programs Offered**: 18
- **BS Degrees Awarded (Annual)**: 574
- **4-year Graduation Rate**: 27.4%
- **6-year Graduation Rate**: 57.8%
- **Honors Headcount**: 149

#### GRADUATE PROGRAMS

- **MS Headcount**: 441
- **PhD Headcount**: 50
- **MS Degree Programs Offered**: 13
- **PhD Degree Programs Offered**: 4
- **MS Degrees Awarded**: 176
- **PhD Degrees Awarded**: 7

#### RESEARCH/CREATIVE ACTIVITY

- **Annual Extramural Expenditures (FY17)**: $6.9M
- **Annual Expenditures per Tenure Track Faculty (FY17 - Engineering and Technology)**: $95.8K
- **Invention Disclosures (Since 2012)**: 152
- **Patent Applications (Since 2012)**: 165
- **Issued Patents (Since 2012)**: 38
- **Start-up Companies (Since 2012)**: 10

#### COMMUNITY ENGAGEMENT

- **Externally supported Senior Design/ Capstone Team Projects (FY17)**: 60%
- **School/Community News Items (FY17)**: 9
- **K12 students in E&T summer programs (17)**: 412

### INTERNATIONALIZATION

- **International Undergraduate Headcount (Total)**: 307
- **International Graduate Headcount (Total)**: 299
- **Study Abroad (FY17 Total)**: 50

### DIVERSITY

- **Faculty (TT, Clinical, Lecturer)**: 114
- **Staff**: 53
- **Faculty (% URM, TT, Clinical, Lecturer)**: 8.8%
- **Faculty (% Women, TT, Clinical, Lecturer)**: 24.6%
- **Undergraduates (% URM)**: 17%
- **Undergraduates (% Women)**: 21%
- **Graduate Students (% Women)**: 7%
- **Graduate Students (% Women)**: 20%

### BEST PRACTICES

- **Faculty and Staff who have participated in Leadership Programs (University)**: 30
- **Faculty and Staff who have participated in Leadership Programs (Regional/National)**: 32

### IMAGE AND REPUTATION

- **USNWR (2019 edition)** Best Graduate Schools Ranking (PhD granting): 97
- **USNWR (2018 edition)** Best undergraduate Schools Ranking (PhD granting): 99

**Notes:**
2. Graduation rates are for first-time, full-time freshmen awarded a degree on any ID campus.
3. URM – traditionally underrepresented in STEM fields: African Americans, American Indians including Native Alaskans, Hispanic/Latino/a, and Native Pacific Islanders, including 2 or more.

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**Strategic Plan 2018-2023**

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**Strategic Plan 2018-2023**

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**Strategic Plan 2018-2023**
Acknowledgment

The Purdue School of Engineering and Technology at IUPUI is deeply grateful for the many and diverse individuals who have invested time, energy, research, insight, scholarship, strategic thought, and planning into the School to make it the thriving entity that it is today—and cast an even greater vision and plan for the future. Our sincerest thanks goes to each member of our student body, staff, faculty, friends, and alumni who have contributed to our Strategic Plan, and especially to those on our Chairs and Academic Deans administrative committee and the Dean’s Industrial Advisory Council for their considerable role in this invaluable endeavor.
Purdue School of Engineering and Technology

STRATEGIC PLAN
2018 - 2023

IUPUI

engr.iupui.edu

The School of Engineering and Technology at IUPUI is a Purdue and IU degree-granting school on the IUPUI campus.