Percent Completion of Strategic Goals

Governance: 58%
Education: 37%
Research: 66%
Service: 82%
Fall Headcount

10-Year Comparison: Fall UG Headcount

10-Year Comparison: Fall Masters Headcount

10-Year Comparison: Fall Ph.D. Headcount
Percentage of degrees awarded by University Park colleges in 2015-16.
Percentage of degrees awarded by University Park colleges in 2015-16.
Degree Comparison by College

Percentage of degrees awarded by University Park colleges in 2015-16.

Doctoral
- Engineering
- Science
- Liberal Arts
- Education
- Earth & Mineral Sciences
- Ag Sciences
- Business
- HHD
- Others
Around Penn State

Annual Research Expenditures

Data are based on PSU Annual Report of Research Activity

Annual Gifts 2015-16

PennState College of Engineering
39 new professors (including co-hires with Huck, Rock, ICS, Science, Medicine, MRI)
Female Students

8,371

Percentage of females in incoming class: 24%

IMPACT 2017
<table>
<thead>
<tr>
<th>Education</th>
<th>Students:</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-Year M.S. and M.Eng. Degrees Launched</td>
<td>2014 0, 2015 99, 2016 147</td>
</tr>
</tbody>
</table>

16+ Students:
Research Experience for Undergraduates

154 Multi-Campus
235 CERI
10 BEU
12 TAMU

RESEARCH AT THE CAPITOL EVENT:

10 projects will represent Penn State
3 projects came through these programs
**Fellowship Funding**

- **2012-13:** $500,000.00
- **2013-14:** $500,000.00
- **2014-15:** $500,000.00
- **2015-16:** $500,000.00
- **2016-17:** $2,500,000.00

**Source:** DTF, DIEGF, GEF, UGF
Students Funded by Fellowships

<table>
<thead>
<tr>
<th>Year</th>
<th>DTF</th>
<th>DIEGF</th>
<th>GEF</th>
<th>UGF</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013-14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015-16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016-17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- DTF: Direct Transfer Fellowship
- DIEGF: Diversity, Inclusion, and Equity Graduate Fellowship
- GEF: Graduate Excellence Fellowship
- UGF: Undergraduate Fellowship
Education

ACCOMPLISHMENTS

- Progress in M.S. Definition
- Expanded Online Program
- New Digital Learning Office
- National Grand Challenge Engineers
Research

ACCOMPLISHMENTS

CHALLENGES

ASPIRATIONS

Food-Water-Energy
Advanced Manufacturing
Resilient Infrastructure
Cyberenvironments

Junior Faculty Research Mentoring
Accolades

- Lyle Long wins AIAA Aerospace Software Engineering Award »
  12/16/2016

- Joan Redwing named American Association for the Advancement of Science Fellow »
  1/12/2016

- Alex Rattner named 2016 Howes Scholar »
  6/21/2016

- Computer Scientist's 'Musical Minds' earns him fellowship »
  7/28/2016

- Long-Qing Chen named a Minerals, Metals and Materials Society Fellow »
  2/2/2017

- Engines grants support innovation and entrepreneurship »
  1/27/2017

- Conrad Tuck »
  10/24/2016

- Akhlesh Lakhtakia elected Royal Society of Chemistry Fellow »
  7/26/2016

- Penn State named one of five inaugural Moore Inventor Fellows »
  11/14/2016

- Michael Tonks named Presidential Early Career Award winner »
  1/27/2017

- Philipp Savage named CIC Department Executive Officer Fellow »
  5/12/2016

- State road research center earns state training excellence award »
  9/2/2016

- Gulu E. Kremer honored with prestigious engineering distiguished engineer award »
  8/22/2016

- Six faculty named Dean's Fellows »
  1/12/2017

- Pak Kin Wong named Society of Laboratory Automation and Screening Fellow »
  1/12/2017

- Four Distinguished Teaching Fellows selected in the College of Engineering »
  1/12/2017

- Bruce Logan named a Thomson Reuters 'Highly Cited Researcher' »
  2/7/2017

- Two biomedical engineering faculty members named AIMBE Fellows »
  1/18/2017

- Three Penn State researchers win Rustum and Della Roy Awards »
  11/17/2016

- Farshad RajabiPour named American Concrete Institute Fellow »
  1/5/2017

Penn State College of Engineering

IMPACT 2017
Communications

COLLEGE ONLINE MAGAZINE

Engineering
The Magazine of the Penn State College of Engineering

The changing face of ENGINEERING EDUCATION

Purpose Vision Impact ALIGNED

WE ARE...

- Decoding engineering advances
- Securing cyberwarehousing
- Advancing nanotechnology
- Improving infrastructure systems
- Creating a sustainable water-energy-food cycle

$1.37M NIH grant to study kinesin motor proteins
Understanding neurodegenerative diseases better

FULL STORY

Penn State College of Engineering

BREAKING NEWS:
We’ve broken ground

E-NEWSLETTER AD CAMPAIGN
Communications

ACCOMPLISHMENTS

COLLEGE AND DEPARTMENT MONTHLY E-NEWSLETTERS

Engineering

Academic Units
- Aerospace
- Architectural and Civil Engineering
- Biomedical Engineering
- Chemical Engineering
- Civil Engineering
- Computer Science and Engineering
- Electrical Engineering
- Mechanical Engineering
- Materials Science and Engineering

Penn State College of Engineering

Penn State at a Glance

With 15 programs in engineering, Penn State Engineering provides multidisciplinary and industrial training, education, and research, and integrates concepts, fundamentals, and projects in a comprehensive way. Our programs and facilities offer undergraduate and graduate degrees in a broad spectrum of engineering disciplines and concentrations, and with more than 35 research centers and laboratories, we use the latest technology to advance teaching, discovery, and application.

Our work is centered with industry, built on our campus in Pennsylvania and further fueled by encouraging our students to develop unique training and employment opportunities.

www.engr.psu.edu

Penn State College of Engineering

Academic Units
- Aerospace
- Architectural and Civil Engineering
- Biomedical Engineering
- Chemical Engineering
- Civil Engineering
- Computer Science and Engineering
- Electrical Engineering
- Mechanical Engineering
- Materials Science and Engineering

News from the Department of Chemical Engineering

FACES OF A NEW ERA

DOE awards $1M to Penn State researchers to create composites for solid lithium conductors

Growing ties and feeding nations

Wayne Currie, professor of chemical engineering, is combining his love of plants and expertise in engineering to improve agricultural practices around the world.

FALL 2016

U.S. Geological Society Funds Study on Pollution of Oil/Gas Wastewater Spread on Roadways

Department of Defense Awards Stu (Shuhua) Yin $3M for Laser Research

Academic Units
- Aerospace
- Architectural and Civil Engineering
- Biomedical Engineering
- Chemical Engineering
- Civil Engineering
- Computer Science and Engineering
- Electrical Engineering
- Mechanical Engineering
- Materials Science and Engineering

Graduate Programs in Civil Engineering

Ready to work one-on-one with some of the best faculty in the country to broaden your expertise through hands-on research?

Our graduate programs allow you to design your own educational experience.

Program Options
- M.S. in Civil Engineering
- M.S. in Construction Engineering
- M.S. in Geotechnical Engineering

MARKETING TO PROSPECTIVE GRAD STUDENTS

Penn State College of Engineering

Academic Units
- Aerospace
- Architectural and Civil Engineering
- Biomedical Engineering
- Chemical Engineering
- Civil Engineering
- Computer Science and Engineering
- Electrical Engineering
- Mechanical Engineering
- Materials Science and Engineering

One-Year M.S./M.Eng. Programs
- Aerospace
- Aerospace Systems and Technology
- Architectural Engineering
- Biomedical Engineering
- Chemical Engineering
- Civil Engineering
- Computer Science and Engineering
- Electrical Engineering
- Engineering at the Interface
- Engineering Design
- Engineering Education and Innovation Management
- Materials Science and Engineering
- Mechanical Engineering
- Nuclear Engineering and Radiation Physics
- Petroleum Engineering
- Industrial Engineering
- Supply Chain Management
- Management

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MARKETING TO PROSPECTIVE GRAD STUDENTS
DEPARTMENTAL REVIEWS
Related to education and research, to add to finance and personnel reviews of spring 2016

- **Fall 2017**
  - ESM
  - IME
  - CEE

- **Fall 2018**
  - Aero
  - BME
  - EECS

- **Fall 2019**
  - SEDTAPP
  - AE
  - MNE

- **Fall 2020**
  - ABE
  - ChE
Governance

1. Raise awareness of the challenges
2. Help College build inclusion skills
3. Build new infrastructure
4. Address resource-based issues

SURVEYS COMPLETED
2,466

RESPONSE RATE
25%

Undergraduate: 20%
Graduate: 30%
Faculty: 45%
Staff: 69%
Governance

ACCOMPLISHMENTS

$144M
ESTIMATED TOTAL COST

194k+
ESTIMATED SQ FT

CHALLENGES

ASPIRATIONS

IMPACT 2017

PennState
College of Engineering
Governance

E-knowledge Commons Groundbreaking

Agricultural Engineering Building

The Collaboratory
90,000 sqft / $110M
FA2007-FA2015 data based on iTwo Official Enrollment dashboard data. FA2016 data based on official enrollment data provided by the University Budget Office.
CHALLENGES

- 800 proposals valued at $350M (typical number is 700)
- Retention of research admin staff members due to stressful deadline-driven activity, over-burden of volume, and opportunities elsewhere
- Growth in proposal numbers and complexity
- Demand for research admin professionals elsewhere due to retirements, central SIRO
- Long Penn State contract negotiation times

SOLUTIONS BEING EXPLORED

Organizational structure

- Assistant director
- Load-level via staff cross-training
- ‘Right-size’ coordinator staff
- Creating career progression model

Proposal submission process

- Improve tools and processes
- Allow faculty and departments to draft budgets
- Allow some aspects to slide until time of award
- Stream-lining of proposal submission
- Sharing effort with Central (at cost)
### Comparison with Top 12 (2015)

<table>
<thead>
<tr>
<th>Metric</th>
<th>PSU ENGR</th>
<th>Average of Top 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>T/TT Faculty</td>
<td>79%</td>
<td>166%</td>
</tr>
<tr>
<td>Undergraduates (per faculty)</td>
<td>28%</td>
<td>59%</td>
</tr>
<tr>
<td>Research $</td>
<td>34%</td>
<td></td>
</tr>
</tbody>
</table>

Ratio of PSU ENGR Metric-to-Average of Top 12
Challenges

- Management of non-tenure track careers
- Modernizing our IT teams
- Increasing UG students with global experience
- Achieving a balanced budget
- Expanding the graduate program
- Increasing fundraising income
Unsuccessful Efforts

<table>
<thead>
<tr>
<th>Effort</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Increasing permanent budget consistent with college’s contribution</td>
</tr>
<tr>
<td>2</td>
<td>Expanding staff to address stress and retention issues</td>
</tr>
<tr>
<td>3</td>
<td>Securing support for 5-year resource allocation plan (Blueprint for Global Preeminence in Engineering, November 2015)</td>
</tr>
</tbody>
</table>
IMPACT 2017
ASPIRATIONS
Aspirations / 2017-18

- Hiring an excellent dean of engineering
- Collaboratory, refurbishment funds, Hammond, Sackett, Units, EE West
- Expand corporate engagement in research, education, and fundraising
- Concluding discussions to change Entrance-to-Major
- Create interdisciplinary majors/minors
- Taking full advantage of size and capability of alumni base
- Strengthening the residential tuition-based M.S. and MEng; Create new societal challenge-based M.S. and MEng
## Dean’s Score Card

### EDUCATION

<table>
<thead>
<tr>
<th>Task</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhance the fundamental undergraduate educational experience</td>
<td>B-/C</td>
</tr>
<tr>
<td>Initiate residence/online cross-Department/cross-College UG majors and minors</td>
<td>C/D</td>
</tr>
<tr>
<td>Offer and expand one-year, non-thesis MS and MEng degrees</td>
<td>A+</td>
</tr>
<tr>
<td>Strengthen and expand Ph.D. programs</td>
<td>A</td>
</tr>
<tr>
<td>Identify and address issues affecting the environment</td>
<td>A+/?</td>
</tr>
</tbody>
</table>

### RESEARCH

<table>
<thead>
<tr>
<th>Task</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop innovative, interdisciplinary research groups</td>
<td>A</td>
</tr>
<tr>
<td>Increase research collaborations within Penn State</td>
<td>A</td>
</tr>
<tr>
<td>Increase college-wide research collaborations with universities, industry, and global partners</td>
<td>B</td>
</tr>
<tr>
<td>Enhance the quality of key laboratories and infrastructure</td>
<td>F</td>
</tr>
</tbody>
</table>
### Service

<table>
<thead>
<tr>
<th>Accomplishment</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase faculty contribution/influence in national and international technical and policy-making committees</td>
<td>D/F</td>
</tr>
<tr>
<td>Raise the profile of and facilitate engaged service on college and campus committees as well as in support of the Commonwealth, the U.S., and international committees</td>
<td>B</td>
</tr>
</tbody>
</table>

### Governance

<table>
<thead>
<tr>
<th>Accomplishment</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhance business operations, fiscal management, and administrative/academic tasks by faculty and staff</td>
<td>B</td>
</tr>
<tr>
<td>Align committees and sub-units with the College priorities</td>
<td>B+</td>
</tr>
<tr>
<td>Recast the financial system to directly support the fundamental functions</td>
<td>F</td>
</tr>
<tr>
<td>Strengthen institutional affiliation and effectiveness</td>
<td>C/D</td>
</tr>
</tbody>
</table>
IMPACT 2017