Strategy Implementation

Start Date: July 2014 | Years 1-3 of a 5-year plan

- **Governance**: 62%
- **Research**: 59%
- **Education**: 61%
- **Service**: 21%
Across Penn State

7-Year Comparison: Fall UG Headcount

7-Year Comparison: Fall Masters Headcount

7-Year Comparison: Fall PhD Headcount

Engineering

PennState
College of Engineering
Across Penn State

Annual Research Expenditures

2014-15 Annual Gifts
People

Janis Terpenny
Department Head
IME

Patrick Fox
Department Head
CEE

Peter Butler
Associate Dean
of Education

Theresa Mayer
Associate Dean
of Research
and Innovation

Tom Litzinger
Assistant Dean of
Educational Innovation
and Accreditation
People
People
People

Authorized 30 searches

27 new professors

(including co-hires with Huck, Rock, ICS, Science, Medicine, MRI)

20 new staff
Education

Populated with 99 students

10 MS and MEng degrees launched

6 more in process to approval and launch
Education

- Project-based learning
- Expansion of Learning Factory
- REU and BEU Programs
Education

GRADUATE RECRUITMENT ATTENDEES

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>22</td>
<td>124</td>
<td>138</td>
</tr>
</tbody>
</table>

Graduate Fellowships | UG Global Engagement | Grand Challenge Engineers

NEW OFFICE OF DIGITAL LEARNING ($/year)

<table>
<thead>
<tr>
<th></th>
<th>Faculty</th>
<th>Departments</th>
<th>College</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$100k</td>
<td>$729k</td>
<td>$1.7m</td>
</tr>
</tbody>
</table>
Research

Optimal and Secure Cyberenvironments

Advanced Manufacturing for Electronic, Biomedical and Mechanical Sciences

Resilient Infrastructure Systems

Sustainable Water-Energy-Food Nexus

Establishment of 4 research thrusts consistent with Penn State thrusts
Research

- Optimal and Secure Cyberenvironments
- Advanced Manufacturing for Electronic, Biomedical and Mechanical Sciences
- Resilient Infrastructure Systems
- Sustainable Water-Energy-Food Nexus

- Integrated Electronic Optical Energy Functions
- Printing Life
- Freeform Components
Research

Optimal and Secure Cyberenvironments

Advanced Manufacturing for Electronic, Biomedical and Mechanical Sciences

Resilient Infrastructure Systems

Sustainable Water-Energy-Food Nexus

Hazard & Original System
- disruption

Building Resilience
- resource allocation

Evaluating Resilience
- controlling interdependence

Outcomes
- Net Benefit vs. Cost
Research

Optimal and Secure Cyberenvironments

Advanced Manufacturing for Electronic, Biomedical and Mechanical Sciences

Resilient Infrastructure Systems

Sustainable Water-Energy-Food Nexus
Research

- Graduate fellowship funding and investment from Grad School
- Engagement in Penn State research thrusts
- Research equipment funds from college resources
- Investment in CoE seed funding and ENGIN grants
Communications

- Using co-robots for skill-based instruction.
- Optimizing student learning and performance.
- Creating LIQUID REPELLING nano-/micro-textured surfaces inspired by nature.
- Building a STEALTH COATING to conceal objects.
- Making the science fiction of cloaking a reality.

Presentations
- 50+ Videos
- Ad Campaigns
- Presentations
Governance

School of Electrical Engineering and Computer Science

5-year budgets and comprehensive review of all units

Office of associate dean for research and innovation
Governance

Center for Engineering Inclusion and Outreach

Metrics-based assessments and decisions

Committee structure to support decision-making and transparency
Governance

College-wide Climate Survey launched in February

Now is your time to ENGAGE!

Take the Survey

In the College of Engineering, we seek to create an environment characterized by openness, fairness, and equal access for all students, staff, and faculty. A welcoming and inclusive campus climate is grounded in mutual respect, nurtured by dialogue, evidenced by a pattern of civil interaction, and is one of the foundations of our educational model. Creating and maintaining a community environment that respects individual needs, abilities, and potential is critically important to the success of our College.

As part of the College’s strategic plan, we have launched an initiative called ENGAGE: Enhancing the Learning & Working Environment at Penn State Engineering. ENGAGE will begin with an online survey to understand the perceptions and experiences of the learning and working environment from students, staff, and faculty. The College will take actions to enhance our learning and working environment based on the findings of the survey. More information about the survey is available in the FAQs.
Governance

Innovation in Undergraduate Education

Frontiers of Discovery

The Global Engineer

Inclusive Penn State

Pioneers of Economic Development

Professor of the Future

Fundraising

Driven by strategic goals
Rankings

College of Engineering USNWR Rankings

- UG
- Grad


PennState
College of Engineering
## Rankings

<table>
<thead>
<tr>
<th>Ranking Year</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Rank</td>
<td>25</td>
<td>25</td>
<td>27</td>
</tr>
<tr>
<td>Overall Score</td>
<td>56</td>
<td>56</td>
<td>51</td>
</tr>
<tr>
<td>Peer Assessment Score (5.0=highest)</td>
<td>3.7</td>
<td>3.7</td>
<td>3.7</td>
</tr>
<tr>
<td>Recruiter Assessment Score (5.0=highest)</td>
<td>3.8</td>
<td>3.8</td>
<td>3.8</td>
</tr>
<tr>
<td>Average Quantitative GRE Score</td>
<td>163</td>
<td>163</td>
<td>164</td>
</tr>
<tr>
<td>Acceptance Rate (%)</td>
<td>21.9</td>
<td>30</td>
<td>24</td>
</tr>
<tr>
<td>Ph.D. Students/Faculty Ratio</td>
<td>3.1</td>
<td>3.4</td>
<td>3.3</td>
</tr>
<tr>
<td>Faculty Membership in NAE (%)</td>
<td>1.4</td>
<td>1.6</td>
<td>1.8</td>
</tr>
<tr>
<td>Research Expenditures (M)</td>
<td>190</td>
<td>162</td>
<td>101</td>
</tr>
<tr>
<td>Research Expenditures/Faculty (k)</td>
<td>538</td>
<td>460</td>
<td>331</td>
</tr>
<tr>
<td>Ph.D. Degrees Awarded (AY)</td>
<td>183</td>
<td>157</td>
<td>228</td>
</tr>
<tr>
<td>Total Graduate Enrollment</td>
<td>1719</td>
<td>1652</td>
<td>1840</td>
</tr>
</tbody>
</table>
Resolved: IT Breach

HACKED BY AN OVERSEAS IP ADDRESS FOR OVER 1.5 YEARS, WITH WIDESPREAD AND DEEP PENETRATION INTO ENGINEERING NETWORK AND HUNDREDS OF IP ADDRESSES

FBI Notification: November 2014

Remediation Day: May 15, 2015

- 20 Compromised Workstations
- 50 Compromised Servers
- 40,000 Person-hours expended (analysis, planning and remediation)
- $10M Total cost to Penn State (personnel hours, new hardware, software, services)

(Improvements ongoing)
Continuing

Management of non-tenure track careers
Achieving balanced budget
Modernizing IT team
Increasing fundraising income
Improving infrastructure
Expanding grad program
Increasing UG global experience
Major Challenges

Having control of UG enrollment to match capacity to provide exceptional education

Convincing the PSU upper administration to significantly increase our permanent budget allocation

Retaining top faculty and academic leadership in an environment of limited resources
Plans for 2016-17
Expansion

- Infrastructure
- Faculty/Staff
- Entrance to Major
- Project-based Learning
Expansion

- Establish ambitious fundraising goals
- Expand corporate engagement
- Improve diversity profile and inclusion
- Strengthen Existing and create new MS/MEng