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
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

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>Year</th>
<th>Attendees</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>22</td>
</tr>
<tr>
<td>2015</td>
<td>124</td>
</tr>
<tr>
<td>2016</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>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
<td>$100k</td>
</tr>
<tr>
<td>Departments</td>
<td>$729k</td>
</tr>
<tr>
<td>College</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

Secure network
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
- Strong interdependence

Building Resilience
- Resource allocation
- Controlling interdependence

Evaluating Resilience
- Sector
- Inoperability
- Economic loss

Outcomes
- Net Benefit
- 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

Research equipment funds from college resources

Engagement in Penn State research thrusts

Investment in CoE seed funding and ENGIN grants
Communications

- 13 Websites
- Branding
- Brochures
- E-Newsletters
- E-Magazine

ENGINEERS: Get your 1-year master’s degree
New Programs. New Perspective.
Communications

Ad Campaigns
Presentations
50+ Videos
Governance

School of Electrical Engineering and Computer Science

Office of associate dean for research and innovation

5-year budgets and comprehensive review of all units
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*
Challenges

COMPARISONS    RESOLVED    CONTINUING    MAJOR CHALLENGES

PennState
College of Engineering
Rankings

College of Engineering USNWR Rankings

- UG
- Grad

2002: 15
2004: 21
2006: 18
2008: 19
2010: 19
2012: 17
2014: 19
2016: 18
Rankings

Ranking dropped in spite of most metrics stabilizing or improving. Errors in reporting research expenditure of over 10 years have been corrected; see below.

<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><strong>101</strong></td>
</tr>
<tr>
<td>Research Expenditures/Faculty (k)</td>
<td>538</td>
<td>460</td>
<td><strong>331</strong></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
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
College Update

Amr S. Elnashai
Harold and Inge Marcus Dean

March-April 2016