

COLLEGE OVERVIEW

2015

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PennState
College of Engineering

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Initiatives

INNOVATION GRANTS

- Twenty one-year research grants
- Interdisciplinary topics meshing with PSU priorities
- Research gems nearing completion



FRONTIER FACULTY LINES

- Six interdisciplinary hires on frontier topics
- At the intersection of societal challenges, faculty interests, and existing/short term research infrastructure
- To create further synergies between departments, centers, institutes, Penn State colleges, and other universities



DISTINGUISHED TEACHING FELLOWSHIPS

- Ten fellowships for senior PhD students
- Teach one regular course under professorial supervision
- Engage with award-winning educators



Initiatives

EXCELLENCE GRADUATE FELLOWSHIPS

- Twenty five full 3-year offers
- Targeted at top incoming graduate NSF fellowship-caliber
- Accompanying specific academic and social program



INSTRUCTIONAL AND RESEARCH EQUIPMENT GRANTS

- Fifteen grants for instruction and research
- Innovative content on both education and investigation



RESEARCH EXPERIENCES FOR UNDERGRADUATES

- More than 50 eight-week embedded opportunities
- Attendance in research methods seminars
- Participation in professional conferences



Initiatives

ONE-YEAR COURSE-BASED MASTERS

- Ten grants for complete proposals
- Non-thesis residential MS degrees
- August-to-August format



GLOBAL PROGRAM DEVELOPMENT

- Ten grants for complete proposals
- Non-thesis residential MS degrees
- August-to-August format



COMMERCIALIZATION GRANTS

- Four funded and second round under review
- Research outcomes that are amenable to commercialization
- Linked to industry requirements

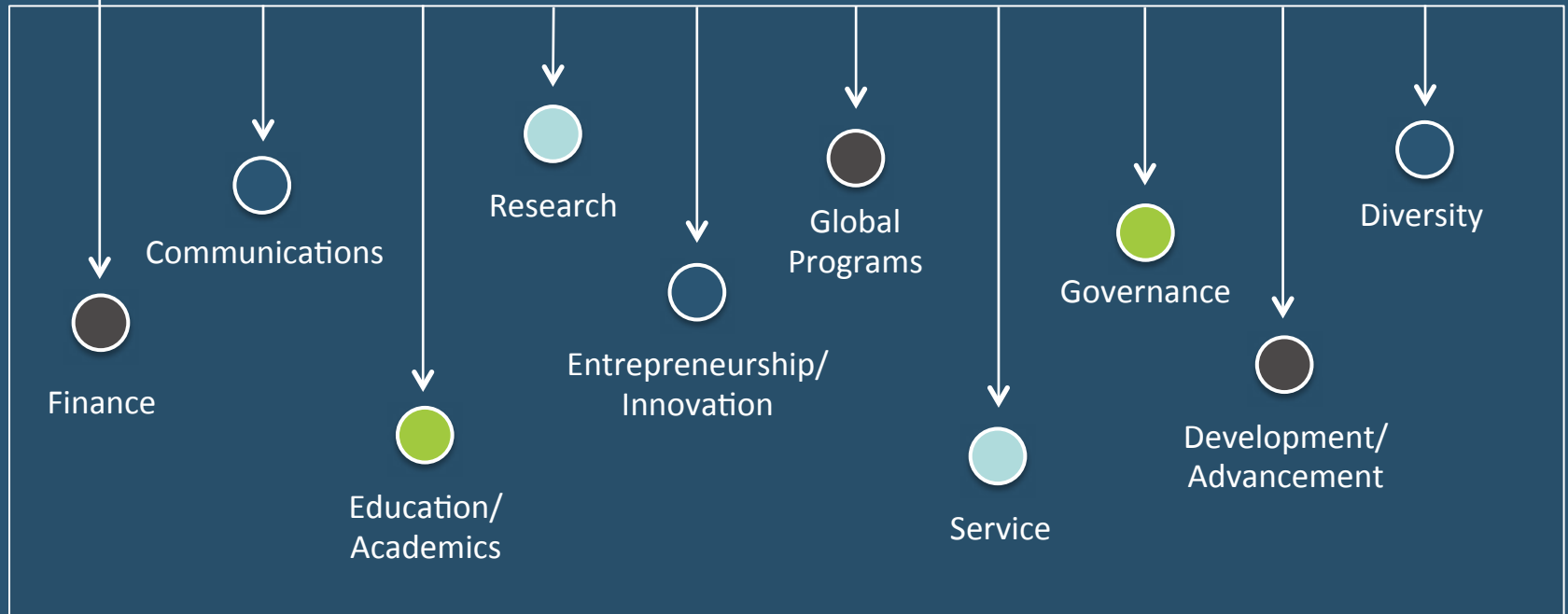


Current/New Initiatives

Innovation Grants 12/\$1M	Instructional and Research Equipment Grants 10/\$1.5M
Excellence Graduate Fellowships 25/\$1.45M	Global Program Development 5/\$100k
One-year Course-based Masters 12/\$600k	ENGIN Grants 4/\$300k
Distinguished Teaching Fellowships 10/\$195k	PSU-wide Research Experience for Undergraduate 200/\$1.2M
Research Experiences For Undergraduates 75/\$500k	Business Experience for Undergraduates and Grads 15/\$100k
Frontier Faculty Lines 6/\$6M	Laboratory Renovation 5/\$500k

Management Model

- Strategy
- Implementation
- Day-to-day



Administration

HR

- Annual review process
- Job responsibilities worksheet



IT

- Streamlining two groups into one
- Expanding the definition of Engineering IT
- Coordination of College and Departments IT



Finance

- Functional budget
- Five-year budget projection
- Cash flow analysis
- Carry-forward management
- Activity budget allocations



Development

- Objectives derived from College priorities
- Expansion of Major Gift Officers
- Strengthening of corporate gift effort



Pre- and Post-Award Management

- Strengthening of the team
- Creation of symmetric structure
- Major proposals coordinator



Communications

- Expanded from one to ten
- New templates for slides
- Brochures
- Major advertising campaign
- Total redesign of all web sites
- New and consistent branding



Communications Firsts

e-newsletter

Hiring 12 biomedical engineering professors

- Imaging, Devices
- Nano, Regenerative Medicine
- Tissue Engineering
- Computational Bioengineering

more than **DOUBLING** the department

[Learn more](#)

PENN STATE
College of Engineering

HIRING 42 NEW PROFESSORS

in new positions over 3 years in emerging areas responding to global challenges

update
to expand faculty by **20%**

[Learn more](#)

PENN STATE

25% EXPANSION

of Faculty in Mechanical and Nuclear Engineering

in cyberphysical systems, energy, biomechanics, manufacturing

[Learn more](#)

PENN STATE



College of Engineering

Ad Campaign

Engineering PENN STATE

News from the Penn State College of Engineering

March 2015

Czyzyk Receives National Global Outreach Award from ASABE

Researchers Propose New Way to Remove Iron from Contaminated Water

Sophomore Max Rohn Hopes to Advance Technology of Prosthetic Limbs, Trains for Track and Field Championships

Rashodnikova Weighs in on Social Network Analysis Privacy

Penn State Selected for 2016 Collegiate Wind Competition



[Learn more about this month's cover photo.](#)

PENN STATE
College of Engineering
WORLD-CLASS ENGINEERING
[Learn more >](#)

In the News

Andy Lau explains how his Star Trek class teaches first-year engineering students about ethics [MORE>>](#)

Electrical engineering alumni co-found fundraising startup, partner with Penn State [MORE>>](#)

Paul Heinemann is working on a low-cost apple harvesting device [MORE>>](#)

Entrepreneur writer Torres references Matson's book *Innovate or Die!* [MORE>>](#)

Firm owned by civil engineering alumnus Iselt recognized for responsible corporate conduct [MORE>>](#)

High-efficiency concentrating solar cells move to the rooftop [MORE>>](#)

Gayah helps Berkeley transportation

Biological Engineering Senior to Receive ASABE Pharos of Alexandria Global Learning Award

Czyzyk recognized for leadership, engaged scholarship, and humanitarian efforts

Kelsey Czyzyk, a senior in biological engineering, has been selected to receive the American Society of Agricultural and Biological Engineers 2015 Pharos of Alexandria Global Learning Award.



The award was established in 2010 to recognize a junior or senior undergraduate or graduate student member who has excelled and demonstrated leadership on the local, national and/or international levels as shown by their activities and offices held at each level.

[LINK TO FULL ANNOUNCEMENT>>](#)

[LINK TO RECENT FEATURE STORY>>](#)

Research Team Working to Combat Contamination in PA's Streams and Rivers

Communications Team

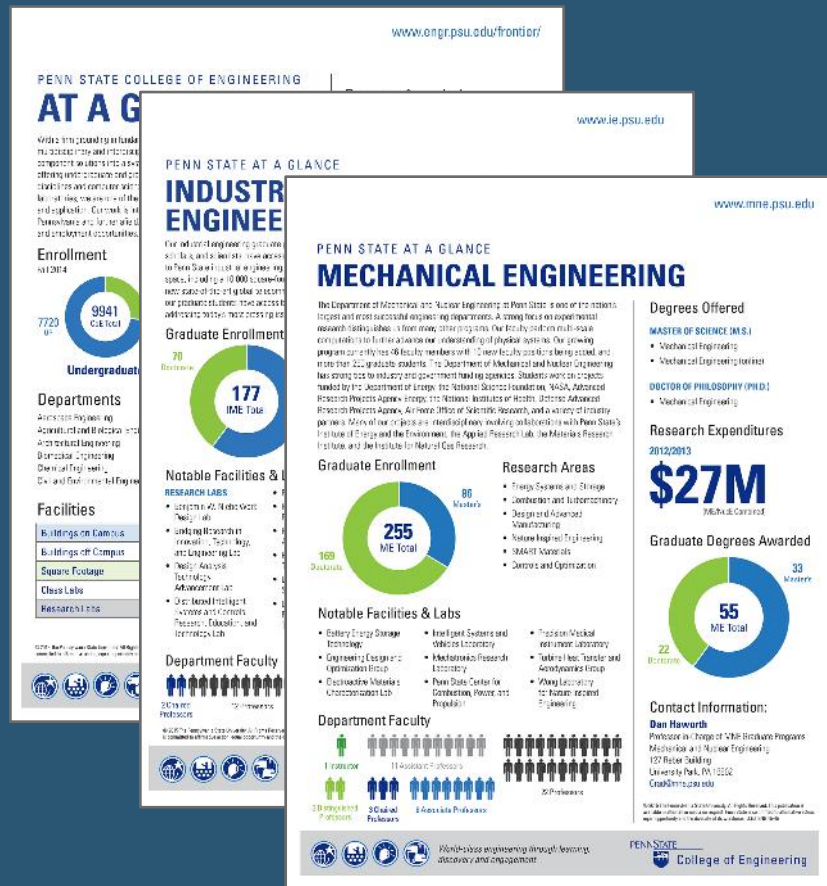


2015 COLLEGE OVERVIEW

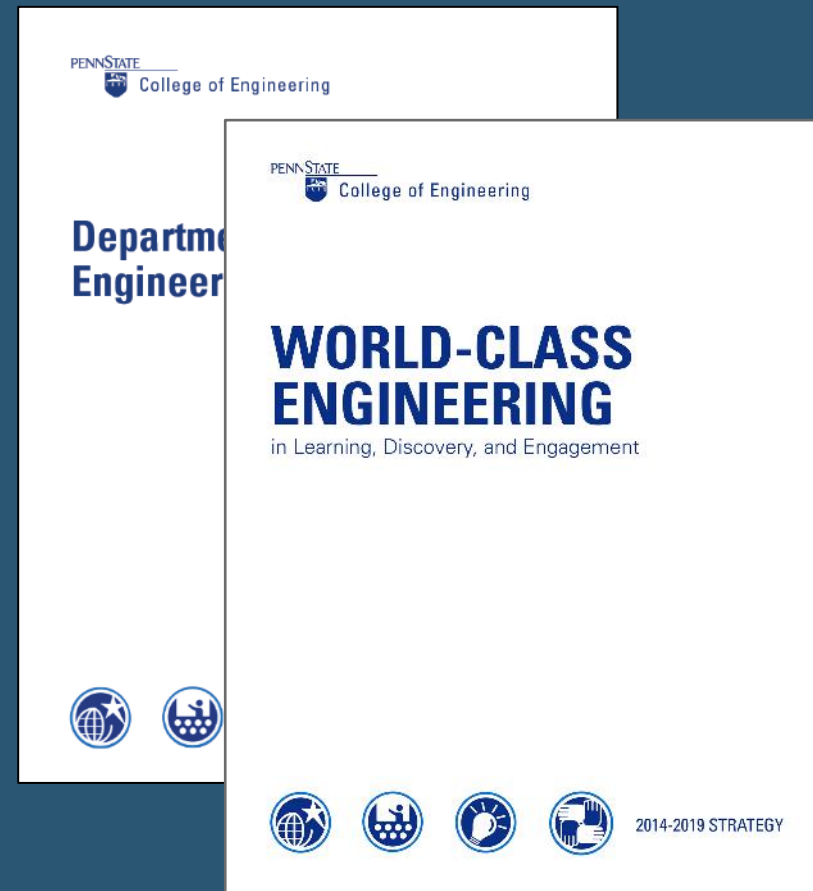


PennState
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Communications Firsts



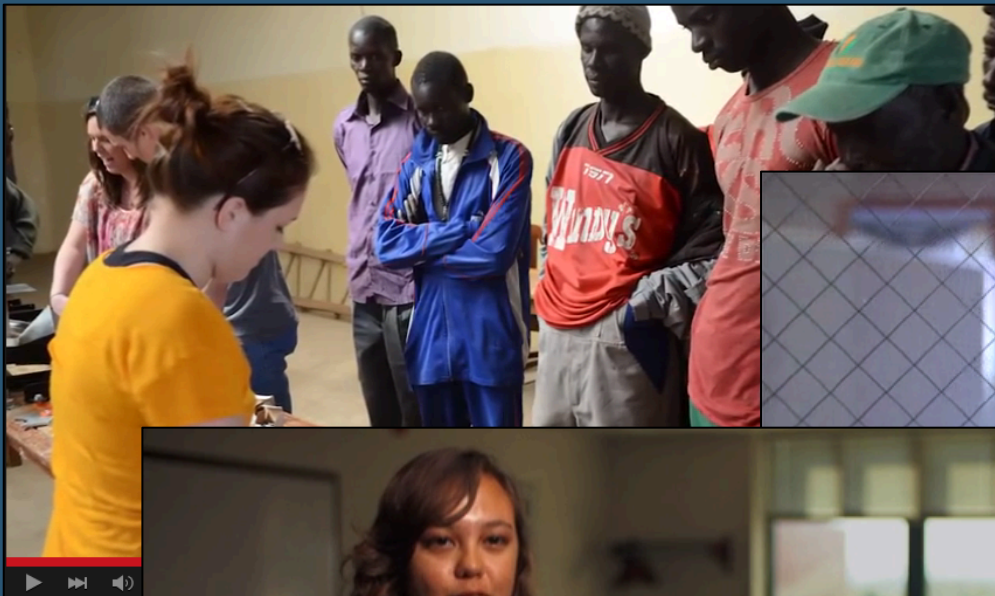
Marketing Campaign



College/Departments Strategy

2015 COLLEGE OVERVIEW

Communications Firsts



Professional videos



Strategic Goals



GOALS

- Enhanced educational experience
- Interdisciplinary majors and minors
- Non-thesis Master
- Strengthened Ph.D. programs
- Improve student environments
- Increased funded projects
- Research collaboration
- Research partnerships
- Improved labs
- Faculty contributions to policy
- Engaged service
- Enhanced business operations
- Alignment of College priorities
- Financial system improvements
- Strengthened institutional effectiveness

Education

Strategic Goal 1:

Enhance the Penn State deep, fundamental undergraduate educational experience with leadership and entrepreneurial training; global awareness; cultural sensitivity; presentation and communication skills; intense project-based and service learning; and more online degree programs.

Enabling Actions

- 1a. Leadership Minor
- 1b. Global Engineering Certificate and Minor
- 1c. Project-based Curricula
- 1d. Service Learning Projects
- 1e. Online Degrees



Innovation in
Undergrad Education

The Global Engineer

Pioneers of
Economic Development

Professor of the Future

Inclusive Penn State

Frontiers of Discovery



Development Thrusts

STRATEGY: Diversity

- Develop a shared and inclusive understanding of diversity
- Create a welcoming campus climate
- Recruit and retain a diverse student body
- Recruit and retain a diverse workforce
- Develop a curriculum that fosters cultural competencies
- Inclusive University leadership and management

Investment in Inclusive Penn State 2015-2019:

\$900,000

Five-year Plan for Global Preeminence



MS/MEng Programs

Aerospace Engineering

Chemical Engineering

Civil Engineering

Computer Science and Engineering

Electrical Engineering

Engineering Design

Engineering Mechanics




Environmental Engineering

Industrial Engineering

APPROVED

Coming Soon: Acoustics, Leadership and Intrapreneurship, Engineering at the Nano-scale, Facilities Engineering and Management, Biomedical Engineering, Structural Integrity

Masters Comparison

Big Ten+ Engineering College	MS One Year	MS No Research	MEng
 UNIVERSITY OF MICHIGAN #9 / 3.7	YES	YES	YES
Stanford University #2 / 6.8		YES	
 THE UNIVERSITY OF IOWA #62 / 1.1	YES	YES	
NORTHWESTERN UNIVERSITY #20 / 3.0		YES	
PENNSTATE  1855 #25 / 1.5	YES	YES	YES

The Highlights



ChemE/Bio building



School of EECS



20% expansion of the faculty

8 Successful initiatives



14 MS/MEng courses



18 ABET accredited programs





Planned Strengthening
of Acoustics

Addition of Associate
Dean for Research
and Innovation

Reorganization
of Finance

Expansion of
Communications

10 Faculty lines in MNE



2 Faculty lines in SEDTAPP



6 Frontier lines



12

Faculty lines in BME



HR
Reorganization

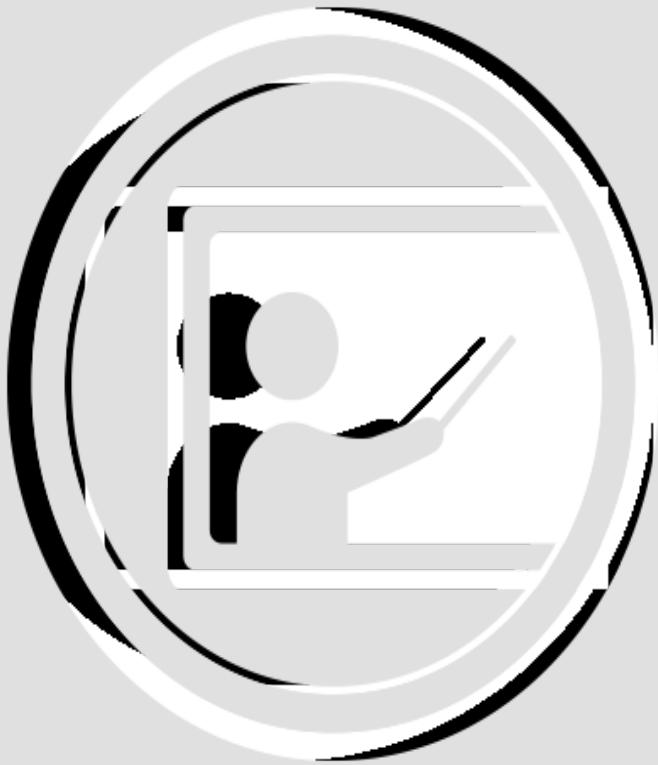
Planned IT
Reorganization

Strategy and
Implementation

Strategy-steered
Development

Over the Horizon

IN EDUCATION



- Interdisciplinary problem-based majors/minors
- Intercollegiate MS/MEng degrees
- Service learning
- Quantitative student satisfaction/feedback

Over the Horizon

IN RESEARCH



- Launching research thrusts
- Industry-CoE research partnerships
- Increase in funded centers
- Intellectual Property support
- Fund large equipment purchases

Over the Horizon

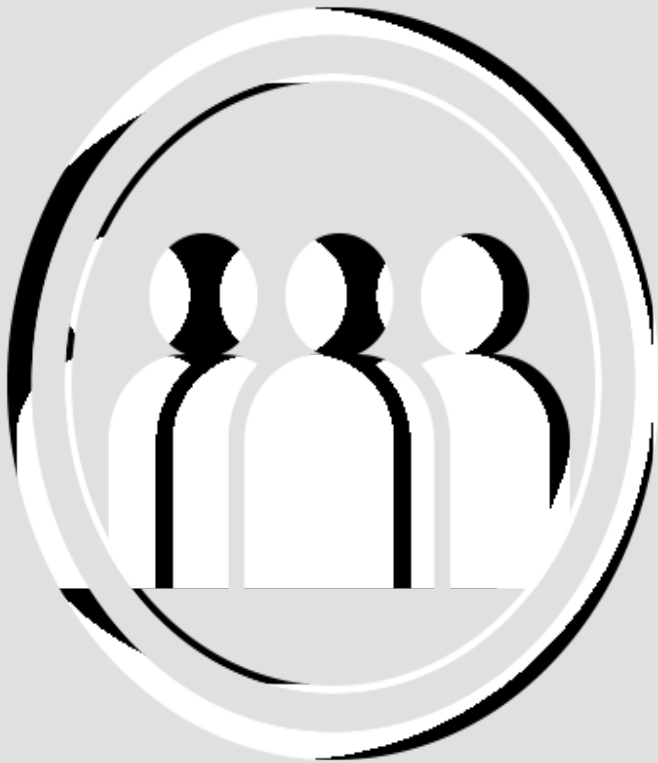
IN SERVICE



- Membership in policy-forming committees
- Reward system for distinguished technical service
- Transnational committees

Over the Horizon

IN GOVERNANCE



- Management and Admin Manual
- Financial tracking and projections
- NTT career progression systems
- Alignment of personal and institutional aspirations
- Departmental and college external reviews

COLLEGE OVERVIEW

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