

RUTGERS

THE STATE UNIVERSITY
OF NEW JERSEY

School of Engineering Overview

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<http://soe.rutgers.edu/>

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Academic Overview

- Depts, Faculty, Grad, UG
 - Biomedical 17.51, 98, 305
 - Chemical and Biological 15.5, 83, 225
 - Civil and Environmental 12, 106, 325
 - Electrical and Computer 29, 253, 469
 - Industrial and Systems 12, 85, 123
 - Mechanical and Aerospace 26.49, 102, 556
 - Materials Science 22.5, 65, 72
- 135 full-time faculty members
- 3007 UG, 797 Grad Students
- 529 BS, 118 MS, 60 PhD degrees (09-10)
- 8% enrollment growth 09 to 10
- 904 SoE UGs, first-year, Applied Sciences including Packaging



SCHOLARSHIP ENVIRONMENT

- 60% of students in the top 10% of their high school class
- 91% of students in the top 25% of their high school class
- Average SAT-I of regularly admitted students is 620 Critical Reading/690 Math, 92% high school class rank
- More than 70% of our entering students receive Advanced Placement or college level transfer credit upon their arrival
- 18% women, 14% minority, 6% out-of-state US, 4% int'l
- Prestigious fellowships upon graduation (Gates, Churchill, Rhodes, NSF, NSDEG)



- FY 09 External Research Expenditures \$48M, \$56M awards in FY 10 (\$16M in tuition and \$10M in state support)
- One PECASE and three CAREER Awards in 2009, 2 IGERTS energy and environment
- Major Research Centers
 - NSF ERC for Structured Organic Particulate Systems, Pharmaceutical Product and Process Design
 - Center for Advanced Infrastructure and Transportation Systems (Research, Education, Tech Transfer)
 - WINLAB, Wireless Information Network, The Mobile Internet
 - Center for Advanced Energy Systems, Energy Solutions for Today and Tomorrow through Engineering
 - Ceramic, Composite and Optical Materials Center (Oldest NSF IUCRC)
 - Biotechnology training grant and stem cell IGERT



Advanced Manufacturing Institute (Anchor of Innovation Park)

- Advanced manufacturing has been identified as a key sector for economic growth and development in the US.
- This policy position will provide opportunities for major sustainable sponsored research programs.
 - For example:
 - the proposed budget for FY11 includes \$75 million for the development of regional innovation manufacturing clusters and \$12 million for the development of innovation ecosystems.
 - Additional investments for promoting advanced manufacturing for FY12 and FY13 include:
 - manufacturing research parks, commercializing university research, developing pre-competitive technology consortia and job training.
 - NIST Technology Innovation Program alone is slated to grow from \$60 million in FY09 to \$100 million in FY15
 - other federal agencies such as NSF and NIH investing on advanced manufacturing.

Concept

In order to capitalize on these emerging opportunities, we propose to create ***a center of centers:***

*The Advanced Manufacturing
Institute of New Jersey*

which will nucleate and further develop *at Rutgers University* targeted industry-specific manufacturing areas.

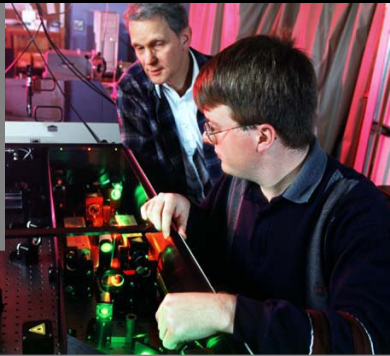
Overarching Goal

1. To focus efforts on areas of existing expertise to elevate the manufacturing profile in order to capture leadership positions in those areas,
2. To build new and stronger industry networks and technology development open innovation environments, and
3. To successfully attract to Rutgers University *major* federal, state and private investment.

- Rutgers Engineering Partnerships
 - Exchange, 2+2, and Graduate Education
 - Research and education collaborations
 - Internships and coops
 - Continuing and Professional Education



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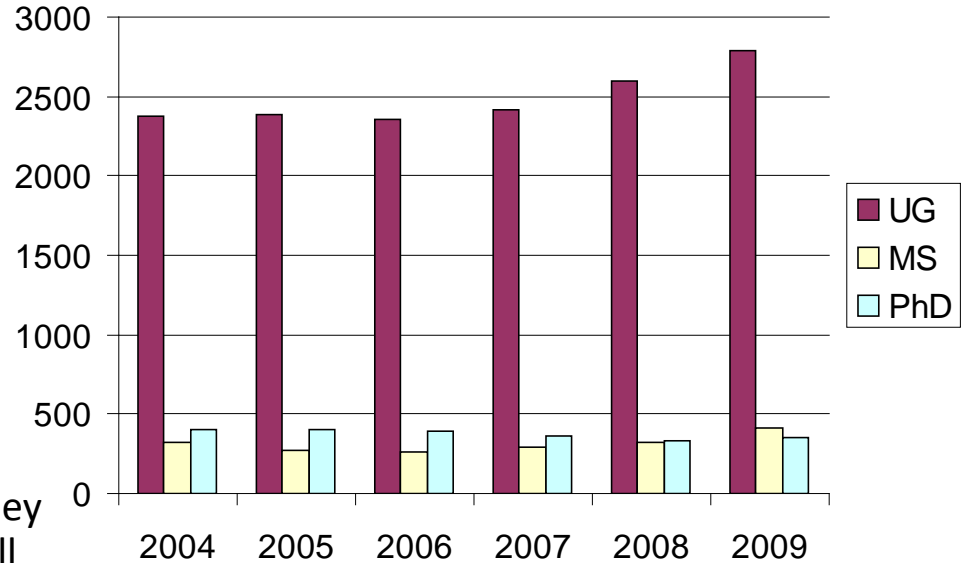
Maybe not the following?

Advanced Manufacturing Institute

University-Industry Partnership



Enrollment History and Placement



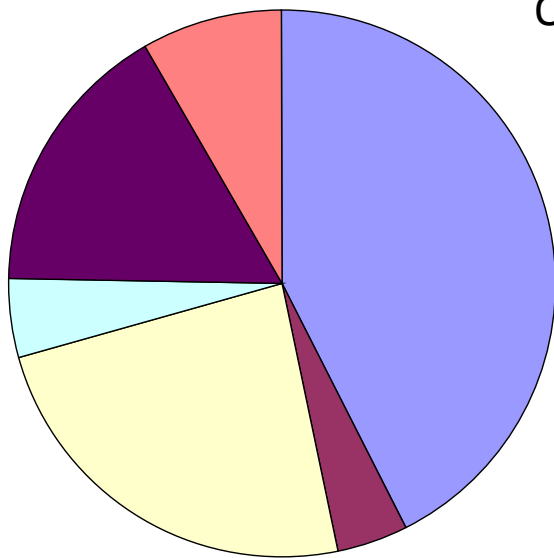
- BAE Systems
- EHS
- FAA
- Goldman Sachs
- Hewlett Packard
- Merck and Co.
- Merrill Lynch (Bank of America)
- Microsoft
- NAVAIR, US NAVY
- NAVSEA
- Nigeria Liquefied Natural Gas LTD
- Philadelphia Teaching Fellows
- Princeton Design Group
- Procter & Gamble
- Prudential
- PSEG Fossil
- Schlumberger
- Skanska USA
- US Patent and Trademark Office
- UPENN
- USMC
- Vanguard
- Voltaix

- Berkeley
- Cornell
- Carnegie Mellon
- Drexel
- Georgia Tech
- Illinois
- Lehigh
- New Jersey Medical School
- New York Medical College
- Penn
- Pittsburgh
- Princeton
- RPI
- Robert Wood Johnson Medical School
- Rutgers
- St George's University
- Or Ross University
- Stanford
- Stevens
- VPI
- Wake Forest University School of Medicine

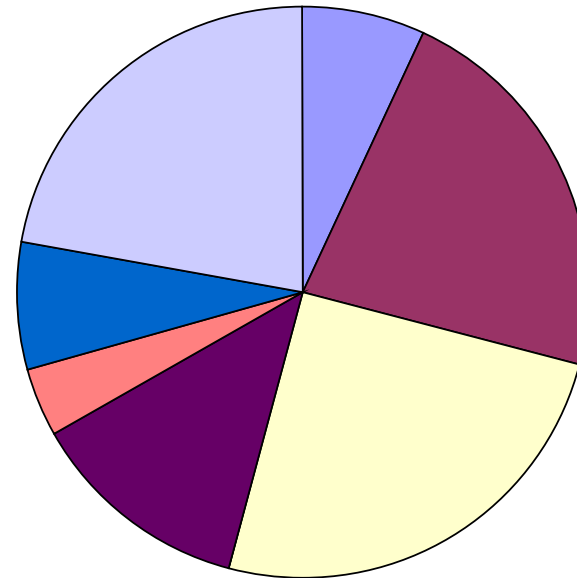


Ceramic, Composite and Optical Materials Center

NSF	26%
DoD	18%
FHA	13%
NJDOT	8%
Industry	7%
NIH	5%
USDOT	4%
DoE	3%
NJ Other	3%
FAA	2%
Other	10%



- BER
- CAIP
- CAIT
- CCR
- ERC
- Winlab



- BME
- CBE
- CEE
- Dean
- ECE
- ISE
- MAE
- MSE

Hiring Thrusts

- Faculty hiring aimed at strengthening the academic departments and building upon interdisciplinary research and education thrusts
- Hiring thrusts should cross the SoE departments and reach outside of SoE
- Criteria
 - Existence of Rutgers strengths
 - Inclusiveness across SoE and partnerships outside of SoE
 - Ability to address national needs
- Thrusts under Development
 - Energy
 - Advanced Materials, Devices, and Nanotechnology
 - Computational Science and Engineering
 - Transportation
 - Health