ACADEMICS

Departments in the College of Engineering
Biomedical Engineering
Chemical and Biomolecular Engineering
Civil, Construction, and Environmental Engineering
Computer Science
Electrical and Computer Engineering
Edward P. Fitts Industrial and Systems Engineering
Materials Science and Engineering
Mechanical and Aerospace Engineering
Nuclear Engineering

Departments in other colleges
Biological and Agricultural Engineering
Forest Biomaterials
Textile Engineering, Chemistry and Science
Students

Fall 2015 Enrollment

<table>
<thead>
<tr>
<th>Level</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate</td>
<td>6,656</td>
</tr>
<tr>
<td>Master’s</td>
<td>2,145</td>
</tr>
<tr>
<td>PhD</td>
<td>1,212</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10,013</strong></td>
</tr>
</tbody>
</table>

Among all U.S. engineering colleges*
- 7th in number of BS degrees awarded
- 7th in number of MS degrees awarded
- 12th in number of PhD degrees awarded
- 7th in total number of degrees awarded

* Engineering Workforce Commission of the American Association of Engineering Societies, Inc. 2013
**Undergraduate Enrollment**

- Undergraduate enrollment increased by 1,029, or 18%.
- Quality of entering freshmen improved with more than 70% in top 10% of high school class.

**Graduate Enrollment**

- Master’s enrollment has more than doubled since Fall 2006.
- Doctoral enrollment has increased by 50%.
Faculty

- 290 tenured and tenure-track faculty members
- 14 members of the National Academy of Engineering
- 2 National Medal of Technology and Innovation recipients
- 2 North Carolina Award for Science recipients
- 1 US Army Commander’s Award recipient
- 1 Emmy Award winner
- 3 Inventors Hall of Fame members
- 1 Electronic Design Hall of Fame member
- 3 among AIChE 100 Engineers of the Modern Era
- 65+ NSF Career Awards since 2000
- 5 Presidential Mentoring Awards
RESEARCH EXPENDITURES 2006-15
More than two-thirds of the College of Engineering is housed on Centennial Campus.

- **EB I:** Departments of Chemical and Biomolecular Engineering and Materials Science and Engineering
- **EB II:** Departments of Computer Science and Electrical and Computer Engineering
- **EB III:** Departments of Biomedical Engineering and Mechanical and Aerospace Engineering
- Biomanufacturing Training and Education Center (BTEC)
- NSF FREEDM Systems Engineering Research Center
- NSF ASSIST Engineering Research Center
NC State University will emerge as a preeminent technological research university recognized around the globe for its innovative education and research addressing the grand challenges of society.
NSF ENGINEERING RESEARCH CENTER COMPETITION

- Highest level of competition among colleges of engineering for National Science Foundation (NSF) funding
- Largest and most prestigious awards offered by the NSF Engineering Directorate … $40 million over 10 years
- 100+ universities compete in first round
- 16 or fewer are site visited
- 8 or fewer are invited for Blue Ribbon Final Competition
- 4 or fewer are eventually awarded
In its history, NC State has received three NSF ERCs:

- 1988 – Center for Advanced Electronic Materials Processing (AEMP)
- 2008 – Center for Future Renewable Electric Energy Delivery and Management (FREEDM) Systems
- 2012 – Center for Advanced Self-Powered Systems of Integrated Sensors and Technologies (ASSIST)

NC State is one of only two universities currently leading two ERCs.

NC State is one of only two universities ever to receive three ERCs.
Solving Society’s Energy Challenges

NSF Engineering Research Center for Future Renewable Electric Energy Delivery and Management (FREEDM) Systems

- Center Director: Dr. Iqbal Husain
- “Top 10 Emerging 21st Century Technologies”
  ~MIT Technology Review
- $40 million, 10-year grant from NSF
- Creating the “Internet for Energy” for renewable energy generation and storage
- Also received a five-year, $9 million grant from the US DOE to design solar energy plug-and-play systems that require little or no customization
Next Generation Power Electronics Innovation Institute (PowerAmerica)

- Led by NC State University
- Develops advanced manufacturing processes to enable large-scale production of wide bandgap semiconductors
- Comprises university, government and 25 energy sector leaders such as Cree, ABB, Toshiba, RF Microdevices and GridBridge, a spinoff from the FREEDM Systems Center
Transforming US and Global Health Informatics

NSF Nanosystems Engineering Research Center for Advanced Self-Powered Systems of Integrated Sensors and Technologies (ASSIST)

- Center Director: Dr. Veena Misra
- Five-year, $20 million grant from NSF with possibility of renewal for another five years
- Awarded in 2012, making NC State the only university currently leading two NSF ERCs
- Will develop and employ nano-enabled devices and sensors to create innovative, battery-free, body-powered, and wearable health monitoring systems
ENTREPRENEURSHIP

• Students in NC State’s Engineering Entrepreneurs program developed the world’s first low-cost tuberculosis test

• Bill and Melinda Gates Foundation is providing funding for an Engineering Entrepreneur student to develop a safe way to remove human waste in developing countries

• Entrepreneurship Garage provides a space and tools and equipment for students to pursue their ideas and develop new products and new companies

• NC State recently opened the Albright Entrepreneurship Living and Learning Village on Centennial Campus to promote innovative and collaborative entrepreneurship among students
K-12 Outreach

- Reaches more than 5,000 K-12 students across the state each year
- Summer camps for elementary through high school across the state
- First engineering camp for visually impaired high school students
- Teacher workshops
- RAMP-UP program
- Engineering On the Road
- Freshman Engineering Design Day, featuring high school and middle school students
Engineering at NC State has transformed our state and is a huge economic driver for North Carolina and the US.

A major producer of outstanding engineering and computer science talent for new and existing high tech industry.

A major producer of engineers and computer scientists who create jobs.
Major Challenge: Huge Nationwide Investments in Engineering as we speak...

• **Texas A&M**  
  Doubling enrollment and faculty by 2025  
  Where will they get these faculty from?  
  New 600,000 sq. ft. engineering building and a new BTEC  
  How will they finance this? Who are they emulating?

• **Purdue**  
  Hiring 100+ new engineering faculty in the next 3-4 years  
  Where will they get these faculty from?

• **University of South Carolina**  
  State supported named professorships in nuclear engineering  
  They are actively recruiting NC State nuclear engineering faculty

• **UCLA**  
  Building EB VI to add to 5 existing Engineering Buildings  
  How are they financing this?
Legislative Update

• The 2015-2017 biennial budget was passed by the NC Legislature and signed by Gov. McCrory at NC State on Oct. 21, 2015.

• The budget includes $2 million in planning funds for Engineering Oval.

• The Legislature also passed a provision for a Bond Referendum, which includes $75 million in funds to build Engineering Oval.

• The Bond Referendum Vote will be held on March 15, 2016 in conjunction with the Presidential Primary.
THE CONNECT NC BOND
BUILDING A BETTER NORTH CAROLINA

• $2 billion bond referendum to provide critical support to North Carolina’s university system, community colleges, agriculture, National Guard, state parks, and water and sewer systems.

• Will fund projects in 76 counties; its impact will be statewide.

• Passage of the bond will not result in a tax increase.

• 15 years since last approved to bond invest in infrastructure; we’ve added more than 2 million residents since then.

The Connect NC Bond Vote is March 15
INVESTING IN A STRONGER STATE OF EDUCATION

- About two-thirds of the bond will go to fund critical improvements in NC higher education.

- $980 million will fund capital projects that focus on STEM education, medical sciences and business for the 17 UNC system campuses.

- $350 million will fund needed upgrades to update the state’s 58 community colleges.
INVESTING IN A STRONGER NC STATE

• Includes $160 million to support agriculture and engineering, critical drivers of economic development and jobs across North Carolina.

• Will fund projects to enhance academic, research and outreach opportunities through the construction of the Engineering Oval and the Plant Sciences Initiative buildings on Centennial Campus.

• NC State also has committed to raise nearly $145 million in private funds to complete these two critical projects.

The Connect NC Bond Vote is March 15
Engineering Oval

- NC State has one of the largest and most respected engineering programs in the nation with more than 10,000 students across a wide range of programs.
- Engineering Oval will enhance the university’s ability to continue to attract and support the world’s best engineering students and faculty.
- Engineering Oval will support the future of infrastructure, manufacturing and health systems in North Carolina.
Engineering Building Oval
Project Description

- 227,000 GSF Building (136,000 ASF)
- Department of Civil, Construction, and Environmental Engineering
- Edward P. Fitts Department of Industrial and Systems Engineering
- Dean’s Administration
Engineering Building Oval
Project Description

100+ classrooms and state-of-the-art labs to further research excellence in:

• Biomanufacturing
• Advanced manufacturing
• Rapid prototyping
• Health systems in engineering
• Construction engineering and management
• Environmental engineering
• Transportation systems
• Other fields of great societal impact
Engineering Building Oval
Project Description

Total Budget: $154 million
• $77 million appropriated
  • $2 million in planning money in 2015-17 State Biennial Budget
• $77 million self-liquidating
  • $60 million private fundraising
  • $17 million performance contract
Long-Term Goal

“To become and be perceived as the leading public college of engineering in the country and one of the premier colleges of engineering in the world”
HOW CAN YOU HELP?

- Spread the word about the NC Connect bond referendum and its importance to NC State Engineering

- Encourage people to get out and vote on March 15, 2016

- Go to connectnc.org for more information on the NC Connect bond and engr.ncsu.edu/oval for information on Engineering Oval.
Our daily commitment to our students is to ensure that the “E” in Engineering truly stands for *Excitement*. 