

**Annual Report 2011-2012  
College of Engineering  
North Carolina State University**

**Overview**

The College of Engineering at North Carolina State University is the flagship engineering college in the University of North Carolina system. With more than 9,200 undergraduate and graduate students in 12 departments, nine of which are administered in the College, it is the largest engineering college in the state and among the largest in the nation. The College ranks among the top engineering colleges in multiple rankings — *US News & World Report*, the Academic Ranking of World Universities and *Wall Street Journal* recruiter rankings.

Despite the challenges created by multiple years of budget cuts, the College has maintained its long-term goal of “becoming and being perceived as the leading public college of engineering in the US and one of the preeminent colleges of engineering in the world.” This is consistent with the UNC Tomorrow plan for the College to become a “premier college of engineering.” Prior to the economic downturn, the state legislature and the University made investments in support of this vision. These investments have made a positive impact on the College. Most notably, research awards and expenditures are up for the sixth year in a row with research expenditures up by 15 percent in the last year alone.

The College’s strategic plan continues to focus on investments in people and infrastructure in interdisciplinary enabling technologies (bio, nano and IT) and areas of important societal need and impact such as energy and environmental systems, health systems, security and critical infrastructure. These align closely with the National Academy of Engineering’s Grand Challenges for the 21<sup>st</sup> Century. The College is also committed to providing its students an educational experience with depth in technical content and breadth in the “softer skills” consistent with the National Academy of Engineering vision of the “Engineer of 2020.” This emphasis is consistent with the University’s strategic plan.

**Changes in the Service Environment**

As reflected in the campus 2020 enrollment plan, the College is committed to expanding its number of doctoral students by 50 percent over the fall 2011 headcount. In order to achieve this goal and also maintain the College’s admirable PhD time-to-degree statistics, it will be necessary to increase the number of faculty available to mentor these doctoral students while also increasing the financial resources available to support the students. Studies have shown that the two greatest impediments to PhD completion rates are lack of financial support and poor advising.

Over the last five years, with assistance from the legislature, the College has been able to increase the number of tenured and tenure-track faculty and continue to improve its facilities and infrastructure. This has resulted in significant increases in research productivity and growth in graduate enrollment. The current legislative environment does not appear to be supportive of continuing investments in operating and new capital projects. This lack of support will negatively affect the future recruitment and retention of leading scholars and the ability of the College to keep pace with, and move forward, among our peer colleges both nationally and worldwide.

**Major Initiatives**

The College continues to emphasize and strongly support the creation of research teams to compete in highly competitive and prestigious national research endeavors. This has been particularly the case with the NSF Engineering Research Centers competition where the College received one award in 2008 (FREEDM

Systems Center) and has placed a number of teams in the final phases of this competition. During 2011-12, another team has developed a proposal that is currently in the final phase of being considered for funding by NSF. If successful, it would make the College and NC State the only college of engineering and university in the country to lead two active NSF ERC awards.

The Chancellor's Faculty Excellence Initiative was a catalyst for significant activity by faculty in the College for the development of cluster hiring proposals with colleagues across the university. Twenty-five proposals were either led by or involved College faculty.

Given concerns about future capital support for completion of the College's move to Centennial campus, the College together with its Engineering Foundation carried out a feasibility study and other efforts related to developing a model of private/public financing for the funding of capital needs for the College. This effort will also be coordinated with the new university-wide capital campaign development effort.

### **Instructional Program Advances**

Through respective undergraduate program course and curricula committees, College faculty introduced several important instructional advances in this academic year. Examples include the renewable energy minor within the electrical and computer engineering department; the biomedical engineering honors program; the new two-semester senior design sequence in the BSE-Joint Mechatronics concentration at UNC-Asheville; the energy and climate course in civil, construction, and environmental engineering; the solar energy course within mechanical and aerospace engineering; and the engineering and technology track within the new sustainable energy minor. The College also established a first of its kind professional master's degree in electric power systems engineering. The program, which will groom recent graduates and new company recruits while rebooting professionals already working in the field, benefits from strong industry support, including a recent gift from Siemens that will establish a term professorship and two graduate fellowships for students enrolled in the program. In addition, BTEC is offering the first industry-scale professional science master's degree in biopharmaceutical biomanufacturing in the country. The new master's of biomanufacturing (BIOM) program allows students to study upstream or downstream biomanufacturing processes while also taking MBA coursework. This business coursework can later count toward a master's in business administration (MBA).

In July 2011, we received communication from ABET Inc. that all of our programs had been accredited for a full 6-year cycle as a result of the 2010-2011 review. This includes 16 engineering programs accredited under the Engineering Accreditation Commission (EAC) and our computer science program accredited under the Computing Accreditation Commission (CAC). All programs were re-accreditation actions, except the BSE-Joint Mechatronics program with UNC-Asheville which represented an initial accreditation action.

### **Research**

The College's high aspirations have created a culture that has produced five NSF Engineering Research Center proposals over the last three years, with one being funded and two making it to the final stages of funding. The NSF FREEDM Systems ERC was funded at \$18.5 million over five years. Now in its fourth year, the center is an established leader in research and education in the area of distribution and management of renewable energy and the development of the smart grid of the future. It has drawn significant attention to NC State as a national leader in energy-related research. In spring 2011, a new type of transformer under development at the FREEDM Systems Center was named to MIT *Technology Review's* 2011 list of the world's 10 most important emerging technologies. And in the summer of 2011, the center attracted and hosted a tour for members of President Obama's Council on Jobs and Competitiveness, underscoring the national reputations of the center and NC State as leaders in energy-related research.

The Modeling & Simulation for Nuclear Reactors Energy Innovation Hub, also known as the Consortium for Advanced Simulation of Light Water Reactors (CASL), is another significant national research effort in which NC State plays a significant leadership role. NC State's Dr. Paul Turinsky serves as chief scientist for this Oak Ridge National Laboratory-led effort. The US Department of Energy will fund CASL at a level of approximately \$122 million over five years – with the possibility that the contract will be renewed for an additional five years. NC State is expected to receive approximately \$11 million in CASL funding over five years.

Other research successes in the College include several new or renewed large research grants. Examples include a \$1.9 million grant from the National Science Foundation (NSF) to support development of an intelligent cyberlearning system for interactive scientific modeling in elementary science education; a \$1.4 million grant from the US Navy Office of Naval Research to support a multi university research initiative (MURI) for sound and electromagnetic waves research; a \$1.4 million NSF (shared with Duke University) in support of soft matter research; and a \$1 million grant from the US Department of Energy to support of the Integrated Biomass Refining Institute.

Collaborations with other colleges are also important to the College. Ongoing significant collaborations with other colleges include the pioneering work being done in the area of rapid prototyping of prosthetic devices for animals with the CVM; serious gaming research and education with four other colleges (COD, CHASS, COEd, and COM); nanotechnology and high performance computing efforts with PAMS; and biofuels-related research with CALS. The College also collaborates with other universities within the UNC system. Most notable is the collaboration with UNC-Chapel Hill in the joint Department of Biomedical Engineering. These partnerships are critical to our research efforts as well as the education of our students.

In addition to attracting and leading major research centers and playing a leadership role in a national consortium as well as a MURI, the faculty excel at landing major research awards, including National Science Foundation CAREER Awards. This year, one faculty member received the National Medal of Technology and Innovation, one faculty member received the Presidential Early Career Award for Scientists and Engineers, and two faculty members received NSF CAREER Awards, bringing the total number of CAREER Awards in the College to 70. This speaks highly to the quality of the new faculty recruited to the College.

The engineering faculty in 2011-2012 were very successful in receiving awards for research. During the period July 1, 2011, through June 30, 2012, the college received 530 awards totaling \$73,006,132. Another important productivity factor for research is the total research expenditures, which for 2011-2012 were approximately, \$69,113,828. These figures include only federal, state, and industry from outside contract and grant accounts; they also exclude the Textile Engineering and Biological and Agricultural Engineering portions of engineering expenditures. The figure for total research expenditures from all sources for 2011-2012 is approximately \$155,842,153, an increase of approximately 15 percent over the previous year.

## **Students**

*Undergraduate Enrollment.* The fall 2011 undergraduate enrollment (including biological engineering and textile engineering) was 6311 (1583 freshmen, 1207 sophomores, 1411 juniors, 2110 seniors) and represents a decrease of 54 students over the fall 2010 enrollment of 6365. Enrollment of women increased to 1078 (17.1 percent) in fall 2011 compared to 1038 (16.3 percent) the previous year. Enrollment of minority students was 1105 (17.4 percent) in fall 2011, which is the same the previous year. Fall 2011 minority enrollment included 356 African Americans, 372 Asian Americans, 236 Hispanic students, one Pacific Islander, 20 Native Americans, and 120 students of more than one race.

*Graduate Enrollment.* Graduate student enrollment increased by 12 percent with fall 2011 enrollment at 2,899 (1,780 master's and 1,119 doctoral) compared to 2,586 in fall 2010 (1,567 master's and 1,019 doctoral). This includes students enrolled in Biological and Agricultural Engineering (BAE) and Textile Engineering (TE). It also includes enrollment for the off-campus Master of Engineering degree, which totals 75. International students made up 51 percent (1,488 students) of the enrollment; 22 percent (629) of the students were women. Minority enrollment was .09 percent (261 students: Asian American 129, African American 74, Native American 6, Hispanic 52).

*Undergraduate Degrees Awarded.* The number of bachelor's degrees awarded for 2010-11 was 1268, and included 49 Biological Engineering, 31 Paper Science Engineering and 44 Textile Engineering degrees, compared to 1086 for the 2009-10 year.

*Graduate Degrees Awarded.* The number of graduate degrees awarded during 2011-12 was 783 (641 master's degrees and 142 doctoral degrees), which includes 17 master's degrees and 7 PhD degrees in Biological and Agricultural Engineering and 12 master's degrees in Textile Engineering. In 2010-11, there were 754 degrees awarded (615 master's degrees and 139 doctoral degrees).

*Undergraduate Student Recruiting.* During spring 2012, five "Spend a Day in Engineering" sessions were offered for freshmen admitted for fall 2012 and their parents. One of these events took place during the finalists' weekend for Park Scholarship nominees and was offered specifically for these students. The visitations included a Saturday event, which permitted the accommodation of 100 students instead of the usual 50-60, and which was particularly popular with out-of-state families. Approximately 300 students and 500 parents attended the visitation days. Engineering Open House in March 2012 drew approximately 1,500 admitted and prospective high school, middle school, and community college students plus parents. Overall attendance was around 3,500. For the third year, the College hosted the tournament social for the regional FIRST Robotics tournament held in Raleigh. This year that event was held at the NC Fairgrounds and drew approximately 1,000 high school students and team leaders from 12 states. In addition, NC State engineering was a sponsor of the 2012 FIRST FRC Launch Event held at Dorton Arena in January.

*Graduate Student Recruiting.* The Engineering Foundation provides a \$40,000 budget to bring outstanding graduate applicants to the campus for personal interviews. Of the 86 students who visited the campus, approximately half are expected to enroll. The Directors of Graduate Programs encourage continuation of the activity. In addition, the Graduate Merit Awards provide funding to attract high-quality graduate students to NC State. For the 2011-12 year, there were 77 new Graduate Merit Awards with values of \$2,500 (28), \$3,759 (2), \$5,000 (34), \$7,500 (9), \$8,000 (2) and \$10,000 (10). The College of Engineering also received an allotment of funds from the Provost office in the amount of \$500,000 through which it created the Dean's Fellowship Program to support new incoming PhD students for 2011-12. The College supported 20 PhD students with these funds.

#### *Distance Education Programs*

The distance education programs within the College of Engineering include online graduate courses and 14 online master's degree programs. The distance education program is continuing to grow with both degree-seeking and non-degree seeking professional engineers and computer scientists enrolling in the online classes. Approximately 80-85 graduate courses are offered each fall and spring semester with approximately ten courses offered in the 10-week summer session. As a result, 9,088 SCHs were generated for the 2011-12 academic year. A total headcount of 2,524 includes matriculated students who took classes in more than one semester, 302 on-campus and 905 non-degree students. For the first year, the number of matriculated students was larger than the number of non-degree graduate students. One hundred and eight faculty members taught or coordinated an online class during the year.

### *Minority Engineering Programs*

The Minority Engineering Programs offer a variety of specially designed initiatives aimed at recruiting and retaining talented minority engineering students. These programs include the Overnight Minority Recruitment Weekend, a yield event that brings high school students who have been admitted to the College to campus for a weekend program that exposes them to the opportunities offered at NC State. This year, 18 of the 22 participants at the March event paid enrollment deposits for the 2012-13 academic year. Other successful programs include the Summer Transition Program (STP), the Student Advancement and Retention Teams (START), and Student Professional Development Courses.

### *Women in Engineering Program*

The ESCAPE to Engineering bridge program for incoming female students continues to be an exceptionally beneficial program for our students. Each year since its inception, forty to fifty young women have come to campus for a week in the summer. The functions of University Orientation are incorporated into programming, as well as field trips to local industries, social activities and success-based activities. This year, an arrangement with the North Carolina Theatre let us take all of the campers to the musical Hairspray for an evening in downtown Raleigh. This camp continues to be funded by additional donations from John Deere and Progress Energy.

The WIE program staff have been working in conjunction with Academic Affairs staff on recruitment and retention issues for women, including working with national programs such as the PACE climate study and the ENGAGE project aimed at retaining female students in engineering. The retention rates for women out pace those of men in our college by 10 points. In addition, the percentage of females in the first year class is now four points above the national average.

### *Engineering Entrepreneurs Program*

The Engineering Entrepreneurs Program (EEP) officially launched the Blackstone Entrepreneurs Network (BEN) in collaboration with UNC, Duke, NCCU and the Council for Entrepreneurial Development. Dr. Tom Miller serves on the BEN Steering Committee, along with Dr. Terri Lomax, to represent NC State. BEN, supported by a \$3.6M grant from the Blackstone Foundation, has just been awarded \$2 million from the NC Fund of Funds to provide seed funding for early stage start-ups. Some of EEP's student-led companies as well as companies from research spin-outs stand to benefit from those funds.

In collaboration with the Office of Technology Transfer, EEP coordinated NC State's participation in the inaugural \$100K ACC Clean Energy Challenge, in which student-led teams submitted business plans in the thematic area of clean energy. Five teams competed from NC State. The winning team was EEP team PowerUp. NC State, Duke, UNC, and Wake Forest are slated to host finals for the event next year. In addition, EEP hosted the second annual Triangle Startup Weekend in EBI and EBII on April 13-15. More than 250 entrepreneurs from around the Triangle converged on Centennial Campus for an intensive weekend of vetting ideas and launching new companies. The winner was "Truxiel," led by EEP alumnus Bert Tong.

### *Summer Programs and K-12 Outreach*

The "Engineering on the Road" outreach activity served over 10,000 students nationwide. Work continued on grants from the National Science Foundation, the Department of Education and the National Institutes of Health. Staff worked with schools in eight states on incorporating engineering into school curriculum, provided teacher workshops to hundreds of teachers on integrated STEM, went to the National Science and Engineering Festival which hosted 600,000 people, held family STEM events at schools every other week throughout the year, and implemented many other programs.

Engineering camps continue to be a great success and are growing quickly. Over 900 students are on campus in a summer in grades 3-12. Partner camps are being held at three additional locations. There are a total of thirteen weeks of day camps and seventeen weeks of overnight camps.

#### *Student Honors and Awards*

President Barack Obama recognized Sina Bahram, PhD candidate in computer science, as one of 14 "Champions of Change" at a White House ceremony May 7, honoring those who have made significant efforts to make science, technology, engineering and mathematics (STEM) more accessible to people with disabilities.

Andrew Santos, a senior majoring in chemical engineering, is one of 22 students nationwide to receive a \$10,000 scholarship from the Astronaut Scholarship Foundation (ASF) for the 2012-13 school year. He is NC State's 22nd recipient of the scholarship, which was first awarded in 1986.

Nehemiah Mabry, a doctoral student in civil engineering, won the grand prize for a video he created for the national "Stay With It" engineering competition. The two-minute video, which follows Mabry through a day studying, attending class and meeting with professors, was named the best among the 12 finalists for the prize. Mabry will receive a \$2,500 college bookstore credit and an Ultrabook computer.

Two chemical engineering students have received the Barry M. Goldwater Scholarship for the 2012-2013 academic year. Heidi Klumpe, a Benjamin Franklin Scholar and a junior in chemical engineering and English literature, and Brinda Monian, a Caldwell Fellow and a junior in chemical engineering and biochemistry, were awarded the scholarships for exceptional work in their fields of study.

#### **Faculty**

The successful results of the College's research program are directly tied to its faculty growth, which is why faculty hiring continues to be a major investment. This academic year, thirty-one new faculty members, including five women, two Hispanics and one African American joined the College. One faculty member was named distinguished professor. Substantial investments were also made in faculty start-up needs, staff support where appropriate, and other operating needs, including those required by the College's growing graduate enrollment. The ability to provide competitive start-up packages in a responsive manner continues to be a challenge. This situation has been adversely impacted by the budget reductions of the last years.

Over the last five years, the College has added 16 women, five African Americans, and three Hispanics to its faculty, bringing its totals to 31 women, 15 African Americans and six Hispanics. While the College is making steady progress, we still have a ways to go to achieve a level of diversity in our faculty ranks that would mark it as a leader in this regard among its peers.

The College of Engineering Faculty Development & Special Initiatives unit has worked with established and emerging programs at NC State to identify and bring strong candidates in the faculty and student realms to the College. The PURPOSE Institute (Promoting Underrepresented Presence on Science and Engineering Faculties), Associate Dean and Professor Christine Grant's sustained NSF ADVANCE grant program at NC State, works at the national level to connect with diverse faculty and networks to raise the visibility of NC State to diverse candidates. A series of programs coordinated by the College's Faculty Development team were instrumental in bringing to NC State a diverse set of speakers through the Seminars of PURPOSE program and a set of diverse postdoctoral scholars in the Building Future Faculty Program. Additionally, NC State received national presence through the ADVANCE Peer Mentoring and Leadership Summit and ADVANCE-ENG Research Workshop held on Centennial Campus in 2011.

#### *Selected Faculty Awards and Honors*

Dr. Jay Baliga received the National Medal of Technology and Innovation, the nation's highest honor for technical achievement. President Barack Obama presented the award to Baliga in a White House ceremony.

Dr. Michael Escuti, associate professor of electrical and computer engineering, received the Presidential Early Career Award for Scientists and Engineers. The award recognizes researchers for working at the frontiers of science and technology and serving the community through scientific leadership, public education or outreach.

Dr. Joseph DeSimone has been elected to the National Academy of Sciences (NAS), one of the highest honors that a U.S. scientist or engineer can receive. DeSimone is William R. Kenan Jr. Professor of Chemical Engineering at North Carolina State University and Chancellor's Eminent Professor of Chemistry at the University of North Carolina at Chapel Hill.

Dr. Phillip R. Westmoreland, professor of chemical and biomolecular engineering and executive director of the Institute for Computational Science and Engineering (ICSE), has been elected president of the American Institute of Chemical Engineers (AIChE) for the 2013 term.

Dr. Richard M. Felder, Hoechst Celanese Professor Emeritus of Chemical Engineering, is the inaugural winner of the Lifetime Achievement Award in Engineering Education from the American Society for Engineering Education (ASEE).

Dr. Louis A. Martin-Vega, dean of the College, received the Frank and Lillian Gilbreth Industrial Engineering Award from the Institute of Industrial Engineers. The award is IIE's highest honor. He was also inducted into the HENAAC Hall of Fame by Great Minds in STEM, a non-profit organization that works to promote science, technology, engineering and mathematics careers among Hispanics and other underrepresented communities.

Dr. Terri Helmlinger Ratcliff became the first woman to receive an "Engineer of the Year" award from the National Society of Professional Engineers.

## **Extension and Engagement**

### *Industrial Extension Service (IES)*

In the past year the Industrial Extension Service (IES) launched the Manufacturing Makes It Real Network and won approval to create a unique innovative online course related to manufacturing. IES also established new partnerships, awarding the NC Department of Commerce as the newest sub-recipient of the NC Manufacturing Extension Partnership. MEP developed new performance measures that emphasize innovation and strategic growth and is adapting to this challenge. IES continues to serve North Carolina business. In 2011-12, IES served a total of 2,295 organizations; of those, 1,236 were manufacturing companies. In 2011, 159 manufacturers responded to the MEP surveys and reported \$313,236,140 in economic impact from IES activities and the creation of 1,146 jobs.

### *Biotechnology Training and Education Center (BTEC)*

The Golden LEAF BTEC, or Biotechnology Training and Education Center, is also a critical player in extension and economic development, particularly in providing human resources needed to grow and enhance the biomanufacturing sector in North Carolina. Its efforts, which include the involvement of the NC Community College System, are supported by bio-related industries in the state as well as the Golden LEAF Foundation. During this fiscal year, BTEC received over \$1.29 million in revenues from these non-state sources. By far the largest component of this outside revenue is the grant from BARDA to train individuals from 13 different countries on influenza vaccine manufacturing (\$950K), followed by process and analytical services (\$172K) via testing and services agreements. BTEC undergraduate and graduate

programs continue to be very popular, with over 600 seats filled during the fall and spring semesters. Over 400 individuals from biopharmaceutical companies attended the open-enrollment and custom courses that comprise BTEC's professional development program.

The BTEC model has been highly successful and has encouraged the development of similar training centers in biomanufacturing throughout the United States, Europe and Asia. BTEC began planning an expansion, called BTEC Innovation and Commercialization (BTEC-I/C). If successful, BTEC-I/C will engage many biopharmaceutical and related companies in an effort to generate additional space, equipment and personnel to offer a wider variety of services to NC State students, incumbent workers, large biomanufacturers and start-up companies.

#### *NC Solar Center*

Another important extension and engagement activity in the College is the NC Solar Center, which acts as a focal point on solar energy technologies and building practices. The College continues to support this activity and assists the center's efforts to obtain legislative support for continuing its work. The NC Solar Center also administrates the Database of State Incentives for Renewables and Efficiency (DSIRE), a searchable web-based comprehensive source of information on state, local, utility and federal incentives and policies that promote renewable energy and efficiency.

### **External Relations/Fund-Raising**

Gifts and grant commitments from corporations, foundations, and individuals made to the NC State Engineering Foundation (NCSEF) during fiscal year 2012 exceeded \$10.4 million, representing an increase of 14 percent over totals from the previous year. Corporations provided more than \$5 million of support to the College, and alumni more than \$2.5 million. More than \$2.8 million in gifts were added to the endowment benefitting the College. That included the establishment of 11 new scholarships, bringing the College's total to 217. More than 380 students in the College received more than \$1 million in scholarship awards generated by endowment last year. The Foundation also raised more than \$225,000 in expendable gifts, mostly from corporations, for annual scholarships awarded to over 120 students. Through the Dean's Circle, the Foundation raised more than \$235,000 for merit scholarships, 26 of which went to incoming freshmen, and 68 to cover renewal scholarships.

The College welcomed several important new members to its fundraising team. In October 2011, Brian Campbell joined as Executive Director of Development and College Relations, replacing the recently retired Ben Hughes. In April 2012, Katalina Canney joined as Business Manager of the Engineering Foundation, as Gwen Bell retired from that position. A new Director of Development, Tasha Martin, was hired to represent the Departments of Mechanical and Aerospace Engineering and Electrical and Computer Engineering.

With this new team in place, a major focus for the coming year will be preparing for the university's upcoming transformational fundraising campaign. Working with the dean and department heads, the Foundation staff has drafted preliminary strategic fundraising priorities for the College and its departments and has been contributing to university efforts to identify top prospects to be interviewed as part of the campaign feasibility study. Identified areas of focus for the upcoming campaign include endowment support into the departments for faculty and graduate student support, and funding to help finance the completion of the move of the College to Centennial Campus.

### **Recommendations and Concerns for the Future**

NC State and the state of North Carolina can take pride in the outstanding accomplishments and the excellent national and international reputation of its flagship College of Engineering. While the College made significant progress in many areas of engineering research and education prior to 2007, this progress

had not kept pace with that of other colleges of engineering that were once comparable peers. With the support of our state legislature, efforts since 2007 have focused on addressing faculty and capital infrastructure needs that are critical for the College to take its rightful place among the leading colleges of engineering in the world.

During 2011-12 the College hired 31 more faculty in interdisciplinary areas such as bioengineering and health systems, nanoengineering, energy and environmental systems and critical infrastructure and security. Investment in this area is an important step in increasing the number of research active faculty to a level more comparable with peer colleges of engineering. At the same time the College lost about half this number of faculty due to retirement and particularly to retention issues. The College's ability to continue to recruit and retain outstanding faculty will be a major challenge as we move forward with the growth of the College. This challenge is made more difficult by the continued lag in the economy and the budget cuts that were implemented in FY11-12.

Similarly, the capital infrastructure support provided since 2007 facilitated the construction of Engineering Building III. Completion of EBIII was a critical step in the College's move to Centennial Campus, its future growth, and the realization of its mission. The current budget situation has continued to delay support even for the planning and design of EB IV and V, much less their eventual construction. Funding for these buildings and the completion of the move of the College of Engineering to Centennial Campus is our highest priority.

It is critical for the College to maintain the positive momentum that has improved its stature nationwide. The impact of legislative support in maintaining this momentum and growing the quality and quantity of engineering talent the College provides to the state as well as the economic impact of the many endeavors carried out by the College throughout the state cannot be understated. Many of these endeavors are also a result of the federal and external support generated by the faculty who have been hired during the last few years. These same faculty have successfully attracted important investments from the Department of Energy, the National Science Foundation and other federal agencies. While these other sources of support are crucial, they do not replace the necessary investments from the state.

With one of the largest enrollments in engineering in the country, the College is a major producer of high-quality engineering talent for the state and nation. This distinction helps North Carolina attract major companies and helps fuel the state's economy. The ability to grow the College's enrollment and provide greater access to engineering education throughout the state depends on legislative support. Since it is clear that the level of state support will likely decrease in the near future, being able to attract more support from the private sector as well as revenue sources such as differential tuition for engineering majors will need to be considered to maintain the growth, both in size and reputation, of the College. Related concerns and challenges include increasing research expenditures, increasing endowment holdings for scholarships, fellowships and professorships, and expanding distance education activities across the state, nation and world.