The Search

Northeastern University seeks an outstanding academic and entrepreneurial leader for the position of Dean of the College of Engineering (COE). Reporting to the Provost/Senior Vice President for Academic Affairs, a member of the National Academy of Engineering, the Dean will have an extraordinary opportunity to lead a college that is central to Northeastern University’s distinctive educational mission and national and international reputation for fostering technological innovation and entrepreneurship in an interdisciplinary environment.

Located in the heart of Boston, in the biomedical research corridor and arts district, Northeastern University is a private research university offering a wide range of programs leading to degrees through the doctorate in nine schools and colleges. Over the past ten years, Northeastern has experienced extraordinary growth in admissions selectivity, research activity, campus life, donor support, and academic reputation. Northeastern is a large and rapidly growing private research University in Boston proper, comprising more than 15,000 undergraduate and 5,000 graduate students and over 4,200 faculty and staff.

In 2006, under the leadership of newly appointed President Joseph Aoun, the University embarked on an institution-wide planning process that involved reflecting on the institution’s purpose and envisioning its future. The University’s 2010-2015 Long Range Plan projects an ambitious range of initiatives and investments aimed at realizing the vision of the 2006 Academic Plan, including the addition of 150 new tenured and tenure-track faculty positions in the coming five years. Northeastern’s research enterprise is increasing its emphasis on multidisciplinary programs in high-impact areas such as sustainability, innovation, personalized medicine and health informatics, drug discovery and delivery, healthcare management, law and policy, network assurance, national security, and energy and the environment. Northeastern’s philosophy of global experiential education, anchored by the University’s signature cooperative education program, is transforming the student experience: international cooperative education placements (co-op) have increased more than threefold since 2006, and Northeastern students now study and work in 85 countries and on every continent—including Antarctica.

Northeastern University seeks a Dean for the College of Engineering who combines exemplary achievements in engineering with strategic leadership ability; entrepreneurial ambition; collaborative and creative energy; outstanding interpersonal and communication skills; and a passion for the unique mission of the College and the University. This is an unusual and exciting opportunity to join a university that is on a dramatic upward trajectory, led by a strong executive leadership team and a highly collaborative council of college deans. This document describes Northeastern University and the College of Engineering, the opportunities and challenges facing the Dean of the College, and the personal and professional characteristics that the ideal candidate should possess. For more information about Northeastern, please visit www.northeastern.edu.

Northeastern University has retained Isaacson, Miller, a national executive search firm, to assist in this search. All applications, inquiries, and nominations, which will remain confidential, should be directed to the search firm as indicated at the end of this document.
CONTEXT: NORTHEASTERN UNIVERSITY

Founded in 1898, Northeastern University is a private research university located in the heart of Boston, and a leader in experiential and cooperative learning, global and urban engagement, and interdisciplinary research. Northeastern offers 94 undergraduate majors and concentrations and more than 165 graduate programs, ranging from doctoral programs to graduate certificates, in nine schools and colleges.

Northeastern has evolved dramatically over the last decade, and the pace of change and progress has accelerated since 2006 under President Aoun. Northeastern’s research profile and external funding levels have risen sharply and the University has emerged as a national contender for highly competitive federal grants and is home to six national research centers awarded by the National Science Foundation, the Department of Homeland Security, the National Institute of Standards and Technology, the National Security Agency, and Department of Veterans Affairs. At the same time, the University’s distinctive, nationally recognized programs of experiential and cooperative education across a comprehensive range of undergraduate and graduate areas of study attract an increasingly diverse, academically talented pool of students. Students are drawn to Northeastern from across the country and around the world, and admission selectivity has increased steadily.

Northeastern was ranked 62 in the 2012 US News and World Report annual ranking of colleges and universities—a rise of 36 positions in five years, the largest gain of any school ranked in the top 100.

Mission and Academic Plan

To educate students for a life of fulfillment and accomplishment.  
To create and translate knowledge to meet global and societal needs.  

Northeastern University’s Board of Trustees officially adopted its new Mission Statement and Academic Plan in June 2007, following an extensive process and institutional dialogue that involved students, faculty, senior leadership, deans, trustees, and co-operative education partners. The new Mission Statement reflects the University's commitment to support and grow its academic enterprise in its entirety and underscores the core values of the University. Guided by a dedication to excellence, innovation, and distinctiveness, the University is dedicated to broadening and deepening its connections to the world to realize its full power and potential as a university with global impact in teaching and research.

In 2009-2010, Northeastern’s senior leaders, in collaboration with the Board of Trustees, developed a five-year Long Range Plan, which lays out a concrete action plan to realize the ambitions of the Academic Plan at every level of the University’s operations. Five strategic themes, central to Northeastern’s distinctive character, were defined through this work and now guide the University as it sets priorities, makes decisions, and focuses resources. They are defined as follows:

- Experiential Learning

Experiential learning is a focal characteristic of a Northeastern education and sets its graduates apart from those of other institutions. Northeastern’s co-op program—one of the nation’s first and the leading program of its kind today—celebrated its hundredth anniversary in 2009-2010 and is anchored in a rich and evolving network of some 2,600 industrial, civil, and NGO partners in the US and abroad. Co-op at Northeastern has developed into a powerful model of education that marries rigorous academic learning with experience outside the walls of the University.

Participation in co-op is required of students in most of the professional colleges in the University and 90 percent of all Northeastern undergraduates participate in co-op while pursuing their degrees. Within the College of Engineering, all Engineering students participate in at least one co-op assignment with 90% of students participating in three-six month assignment. In 2009-2010, Northeastern expanded student options for participating in co-op by adding four-year, two co-op degree plans to the traditional five-year, three co-op plan. In the past decade, the University has broadened the historical base of cooperative education to
encompass a wide array of experiential learning opportunities in research, service, and global work and study. The University’s undergraduate core curriculum requires all students to participate in at least one experiential learning project. Northeastern’s goal is to create a transformative academic and experiential education that has no borders. Northeastern’s students participated in experiential learning in 85 countries in 2010-2011, up from 39 in 2006. Student participation in other forms of study abroad, including Northeastern’s innovative, faculty-led “Dialogues of Civilizations” program, has also risen steeply in recent years, increasing by more than 80% between 2006 and 2011, along with demand for interdisciplinary and cross-college majors such as International Affairs and International Business as well as Electrical Engineering and Physics. The Presidential Global Scholars program was launched in 2009 to support outstanding students pursuing international co-op opportunities.

- Interdisciplinary and Translational Research

Northeastern University is internationally respected for its excellence in fundamental and translational research in an interdisciplinary environment. Through its recent academic planning process, several broad themes—sustainability, health, and security—have emerged as central foci of the research enterprise.

In the past few years, Northeastern has pursued, and won in high numbers, the most prestigious and competitive grants on the national funding scene. The success of Northeastern’s faculty researchers in attracting high-level funding is enhanced by the interdisciplinary teamwork that spans the University and builds bridges between teaching and research. New research awards reached $95.2 million in fiscal year 2011, an increase of 95% over the past five years, and the University has received more than 70 external research grants of $1 million or more since 2006. The College of Engineering received $30.6 in research awards in fiscal year 2011.

The University is currently home to six national research centers, all of which are led or co-led by COE faculty, that are funded by the National Science Foundation, the Department of Homeland Security, the National Institute of Standards and Technology, and the Department of Veterans Affairs:

- Bernard M. Gordon Center for Subsurface Sensing and Imaging Systems (CenSSIS);
- Center for High-Rate Nanomanufacturing;
- Center for Awareness and Location of Explosives-Related Threats (ALERT);
- Center for Versatile Onboard Traffic Embedded Roaming Sensors (VOTERS);
- New England Healthcare Systems Engineering Center; and
- Institute for Information Assurance (IIA)

The University also hosts two NSF-funded Integrative Graduate Education and Research Traineeship (IGERT) centers, in Intelligent Diagnostics and Nanomedicine (recently renewed for five years).

Northeastern’s external research partnerships also continue to grow. The University is a founding member of the consortium currently engaged in building the Massachusetts Green High Performance Computing Center (MGHPCC) and in spring 2010 was invited to join CIMIT (Center for integration of Medicine and Innovative Technology), a consortium of Boston teaching hospitals and universities that fosters interdisciplinary collaboration among world-class experts in medicine, science, and engineering.

An additional measure of the vitality of Northeastern’s research environment is the health of the graduate education program. In 2010-2011, the University awarded 132 PhDs and enrolled approximate 4,000 full-time graduate and 600 law school students. Doctoral degrees are offered in the humanities, social sciences, and sciences, as well as in engineering, health sciences, computer and information sciences, criminal justice, and law. New doctoral programs in areas of excellence embodying the University’s commitment to interdisciplinary, use-inspired research were recently launched in Bioengineering, Information Assurance and Personal Health Informatics, and others are in currently in final stages of development.
Northeastern is committed to providing the colleges with the research and instructional infrastructure needed to sustain this momentum. The University’s new and renovated research and instructional facilities have won national recognition as green building projects, and in 2009 Northeastern became one of only 15 educational institutions out of 697 to earn a place on the 2010 Green Rating Honor Roll compiled by the Princeton Review.

- **Intellectual Life and Creative Expression**

Northeastern promotes intellectual life and creative expression across a broad range of academic and campus initiatives. At the International Village, the newest residence hall on campus and home to the Honors First Year Living Learning Community, exhibition space showcases a variety of works by students, faculty, alumni, and nationally known artists. This includes a 240 square-foot mural by the renowned urban artist Shepard Fairey, a series of photographs taken in the Sudan by Northeastern graduate and photojournalist Jessica Scranton, and a medial wall displaying live and still images from around the world. Northeastern’s on-campus art gallery, Gallery 360, featured the work of 10 local and national artists and attracted more than 40,000 visitors in its opening year. The University’s Humanities Center connects Northeastern faculty and students with distinguished visitors in wide-ranging interdisciplinary conversations.

Northeastern’s partnerships in intellectual exchange and the arts are global as well as regional and national. In 2007, Northeastern became one of just four universities to earn a three-year Fusion Arts Exchange grant from the U.S. Department of State’s Bureau of Education and Cultural Affairs. The grant brings a group of multinational students to travel to Northeastern each year for a six-week, intensive music program. The Boston Guitarfest, now entering its sixth year under the combined sponsorship of Northeastern University and the New England Conservatory, showcases guitar virtuosos from a global range of musical traditions.

- **Urban Engagement**

Northeastern approaches community engagement as a central part of its purpose, and views its core missions of teaching, research, and service as inseparable from active civic engagement. The University works collaboratively and creatively with the Stony Brook neighborhoods of Roxbury, Mission Hill, the Fenway, and the South End, partnering with 200 community service organizations. The University makes an estimated $350 million annually in direct and indirect contributions to the Boston economy and directs more than $10 million in financial aid to Boston residents who attend Northeastern.

Northeastern remains true to its commitment to offer opportunity to all students who demonstrate potential and continues to graduate more Boston public high school students than any other private institution. Northeastern’s innovative Torch Scholars program, supported to date by more than $8 million in gifts by alumni, faculty, and friends, offers full tuition, fees, and room and board scholarships to students who have overcome exceptional odds and who demonstrate the potential to excel academically; the program admitted its sixth entering class in fall 2011 and has an 87% retention rate. Northeastern’s Yellow Ribbon Program commits $2 million to educating post-9/11 veterans of the U.S. armed forces. The Civic Engagement Program, a year-long comprehensive program for student scholarship recipients that integrates orientation, training, direct service, and reflection, commits participants to a minimum of 100 hours of meaningful community service, resulting in more than 10,000 hours of service a year for Northeastern’s community partners. Another recent initiative in community engagement is the Foundation Year program, designed to assist Boston public high-school graduates’ transition to college through a demanding and supportive 12-month first-year college program; 93% of the first 2009-2010 cohort completed the program, and Foundation Year students went on to enroll at Northeastern and other colleges and universities across Massachusetts.

- **Global Opportunities**

Northeastern has broadened its global reach through expanded experiential learning opportunities abroad as it has increased international enrollment. Experiential learning is now conducted in 85 countries and participation in study abroad increased more than 80 percent between 2006 and 2011. Enrollments in
Northeastern’s innovative, faculty-led Dialogue of Civilization programs have increased more than six-fold from 2006 to 2011. The University received a 2010 Senator Paul Simon Award for Campus Internationalization from NAFSA, the association of international educators.

International instructional partnerships include Northeastern’s highly ranked Bachelor of Science in International Business program (BSIB), which combines business and language courses at a foreign university with at least one year of experience abroad. In 2008 Northeastern and the Technion-Israel Institute of Technology launched a partnership focused on mutual research areas of interest, including advanced technology for sensing and imaging, homeland security, information assurance, engineering leadership, and experiential education. The partnership features joint research projects among faculty and graduate students, a think tank, and undergraduate student exchanges, and its efforts are now supported by the Robert J. Shillman Fund for Global Security.

Northeastern has also established a technology-transfer partnership with Greek universities and research centers. The partnership centers on the Northeastern University – Greece Innovation Center, which enables the exchange of scientists and facilitates the transfer of technology in fields such as energy, nanotechnology, biotechnology, and drug discovery.

**Colleges and Schools**

The **School of Law**, organized in 1898, anchored the foundation of Northeastern University. Its distinctive cooperative education requirement grounds legal education in the practice as well as the theory of law. The School of Law’s founding mission of community service continues to the present in the School’s focus on how law serves the public interest.

The **College of Business Administration** began to offer courses in 1907, marking Northeastern’s entry into undergraduate education, and was organized as a college in 1922. The College launched a Graduate School in 1963 with the offering of a full-time MBA. Today the College’s Executive MBA program has been recognized among the most highly enrolled such programs in the world by the *Financial Times*.

In 1909 the **College of Engineering** began offering its first day courses, and it was authorized to grant degrees in 1920. The College established a Graduate School of Engineering in 1958 and approved its first doctoral degree programs in 1961. The College of Engineering led Northeastern’s emergence into the arena of funded research, and currently anchors a distinguished array of nationally funded interdisciplinary research centers.

Northeastern’s new **College of Science**, founded in 2010, brings together the science disciplines formerly housed in the University’s College of Arts and Sciences. The natural sciences offered the first graduate degrees in Arts and Sciences, with master’s programs in the natural sciences beginning in 1940 and the first doctoral programs in the sciences launched in the 1960s. The College of Science also supports a number of interdisciplinary research centers and instructional programs mounted in collaboration with the Colleges of Engineering, Health Sciences, and Computer and Information Science.

The new **College of Social Sciences and Humanities**, founded in 2010, recognizes the synergy between the research and instructional aims of the former College of Criminal Justice (organized in 1967) and the social science programs of the former College of Arts and Sciences. Doctoral programs in several humanities and social sciences disciplines of the College of Arts and Sciences were founded in the 1990s; over the same period, the College of Criminal Justice developed a broadly interdisciplinary program of research and instruction in criminology and social policy, adding a PhD program to its offerings in 2004.

Northeastern’s earliest instructional programs in the arts were housed in a Division of Fine Arts, established in the College of Arts and Sciences in 1980. The growth and success of Northeastern’s arts and communications programs, and the convergence of digital tools in art, design, and media studies with journalist practice, form the basis of Northeastern’s new **College of Arts, Media and Design**, founded in 2010.
The **Bouvé College of Health Sciences** merged with Northeastern in 1964, and currently comprises schools of nursing, pharmaceutical science, and health professions. Benefiting from proximity to Boston’s superb array of medical institutions, Bouvé College’s assortment of academic and clinical programs is growing strongly in graduate enrollments and external research funding as well as undergraduate academic quality and retention.

The **College of Computer and Information Science** was established in 1982 as the first college in the United States devoted exclusively to the rising discipline of computer science. In 2002, “Information Science” was added to the College’s name, reflecting the College’s research profile in such areas as databases, information architecture and security, and networks.

Northeastern’s **College of Professional Studies**, established as University College in 1960 and reorganized in 2003, offers undergraduate, graduate, graduate certificate, and professional development programs to students ranging from first-year Northeastern undergraduates beginning their undergraduate degrees in innovative overseas programs to seekers of professional doctorates. Graduate and online programs in the school are currently growing rapidly, as is the school’s role in recruiting international students to Northeastern.

**Faculty**

Faculty excellence is at the heart of the Northeastern mission and the University’s commitment to support and grow its academic enterprise. Many of Northeastern's 1,986 full-time and part-time faculty members have garnered national and international acclaim for their achievements in teaching and research, with particular strength in interdisciplinary scholarship.

Northeastern is committed to supporting outstanding teaching and research through excellent faculty hires and to adding new tenured and tenure-track faculty positions with an interdisciplinary focus. The University's 2010-2015 Long Range Plan projects recruiting 150 faculty members into new tenure-line positions and filling another 150 replacement positions in the next five years. Cross-college interdisciplinary appointments and the opportunity to make cluster hires are increasingly attracting senior national leaders in their fields to join Northeastern’s faculty.

From fall 2006 through fall 2011, the University recruited more than 260 new tenured and tenure-track faculty members. Over the same period, total tenured and tenure-track faculty numbers rose from 641 to 717. More than sixty new tenured and tenure-track faculty members are joining the University in the 2010-11 academic year and include new senior faculty members strengthening interdisciplinary research efforts in network science, information assurance, health informatics, and public policy.

Faculty recruited to Northeastern come from around the world and from some of the most prestigious institutions in their disciplines; they cite the interdisciplinary and translational intellectual culture of the campus, Northeastern’s excellence in foundational disciplinary research, and institutional momentum as key reasons for joining the University community.

In fall 2008, Northeastern was awarded a five-year, $3.7 million ADVANCE grant from the National Science foundation to increase the representation and advancement of women faculty in the sciences, in engineering, and in the social sciences. The ADVANCE grant is assisting in attracting outstanding faculty to Northeastern, and its programs will ultimately enhance the University’s ability to recruit, advance, and retain an excellent faculty on all dimensions of diversity and across all the academic areas of Northeastern.
Students

Undergraduate

Following a strategic decision in the mid-1990s to stabilize undergraduate student enrollments, seek a more national and international student body, and focus on retention, Northeastern’s admissions selectivity has increased dramatically. For the fall 2011 entering class, the University received a total of 43,024 applications for 2,800 places—more applicants than any other private university in the United States. More than 2,400 new high schools have entered Northeastern’s applicant pool since 2006, including 553 outside the United States. Current full-time undergraduate enrollment totals approximately 15,700 full-time students.

The academic profile of Northeastern’s new students is stronger than at any time in the institution’s history: 108 entering freshmen in fall 2011 are National Merit and National Achievement finalists, up from three in 2006, and 56 percent graduated in the top ten percent of their high school class. The mean SAT score of enrolled freshmen was 1341, and applications from students scoring higher than 1400 have more than doubled since 2006. Northeastern’s entering class is increasingly diverse: the past five years have seen a 17% increase in students of color among the incoming class, a 125% increase in enrollment from outside New England and mid-Atlantic states, and a 445% increase in international students.

The increasingly high caliber of Northeastern’s undergraduate student body has been recognized externally, as well as internally, with the award of several highly prestigious fellowships. In recent years, Northeastern undergraduate students have earned Fulbright fellowships, Goldwater fellowships, and Steamboat fellowships.

Graduate

Northeastern’s rising research profile is reflected in the expansion of the graduate education program and the strength of its graduate students. From fall 2006 to fall 2010, the total number of graduate students enrolled (exclusive of the School of Law and College of Professional Studies) grew by 62 percent, from 3,899 to 6,318. Graduate students choose from more than 165 programs, ranging from doctoral and master’s programs to graduate certificates. The University offers a number of professional master’s degrees with interdisciplinary themes as well as doctoral programs that incorporate the pedagogic benefits of Northeastern’s signature cooperative education program.

An initiative to enrich graduate stipends for especially highly qualified applicants launched in early 2007, the University Excellence Fellowships, has recruited more than 75 outstanding new doctoral students to study in fields across the University—from pharmaceutical sciences to electrical engineering to politics of globalization. An increasing number of international graduate students are financially supported by their home countries to pursue their graduate education at Northeastern.

Northeastern’s graduate students have won prestigious external fellowships and awards for their work, including in recent years a Charlotte W. Newcombe Fellowship, a Farnsworth Trust Research Fellowship, Fulbright fellowships, and predoctoral fellowships from the National Institutes of Health and the National Science Foundation.

In fall 2011, Northeastern launched an innovative model for bringing the professionally oriented graduate programs of the colleges to a wider audience through a system of regional campuses. The first such campus opened in October 2011 in Charlotte, North Carolina; others are currently projected for Seattle, Washington and Austin, Texas. The graduate programs to be offered at each campus are carefully tailored to regional economic needs and will focus on high-quality online and hybrid online/face-to-face instruction. The establishment of a regional campus system will create opportunities to develop and offer innovative graduate degree programs; establish new corporate partnerships; and extend Northeastern’s research activities, while delivering the benefits of an extended national and global network to the University’s students and faculty in Boston.
Finances and Budget

Northeastern’s financial position remains strong in economic circumstances that have been challenging for all universities. In times of increasing global competition, a Northeastern education continues to appeal strongly to talented students and their parents. Additionally, the University has had capable financial leadership that has effectively and prudently managed its resources. The ongoing strength of Northeastern’s educational philosophy and its solid financial stewardship has allowed the University to continue its strategic investments in new faculty hiring, financial aid, and academic facilities and to draw others to invest in its vision.

Northeastern recently moved to a new management and budget model that will allocate income and expenses to the colleges and greatly enhance the authority of the academic deans in focusing college resources in support of University priorities. This is a major change in the University’s operating philosophy and significantly enhances the role of the dean within the institution. The new Dean of the College of Engineering will be instrumental in shaping the implementation of the policy for the benefit of the College.

Implementation began in fiscal year 2010 with one set of the colleges and concluded fiscal year 2011 with all the University’s colleges on the new budget model. The model, which incorporates many of the features of “responsibility-centered management,” encourages the generation of new resources and provides deans and other managers with incentives to achieve their missions most efficiently. The new budget model at Northeastern University couples program responsibility with meaningful authority over resources. The hybrid budget model supports deans in developing cultures of strategic decision-making, informed by fuller awareness of benefits and consequences, in their colleges.

The University increasingly involves deans and faculty, with central support, directly in fundraising. Sharing responsibility for advancement more broadly has enabled Northeastern to articulate the strengths and needs of specific programs to potential donors in increasingly compelling ways. The University’s approach to development engages individual donors and foundations as investors in Northeastern’s future. The number of million-dollar gifts to Northeastern from 2006-2011 grew by 402% compared to the previous five-year period, and individual donors have risen by 34% over the same period. Annual fund participation continues to rise at all levels as the University continues to engage its alumni and friends in innovative new ways. Notable gifts of $1 million and above in the past five years include:

- The **Sternberg Family Distinguished University Endowed Chair** and **Sy and Laurie Sternberg Interdisciplinary Endowed Professorship**, funded by Sy and Laurie Sternberg, support outstanding faculty members in Northeastern’s signature areas of excellence.

- **Gordon Engineering Leadership Program.** This donation by Bernard and Sophia Gordon supports an innovative approach to educating engineers and will enable the Center for Subsurface Sensing and Imaging Systems (CenSSIS), which has been renamed in Bernard Gordon’s honor, to evolve into a research and development center focused on converting scholarship and study into products. Gordon is not an alumnus and had no previous ties to the University, but was attracted to Northeastern’s unique model of blending practice with classroom learning.

- **W.M. Keck Foundation Grant.** A grant from the W. M. Keck Foundation was awarded to three Northeastern colleges—Bouvé College of Health Sciences, the College of Arts and Sciences, and the College of Engineering—to develop an innovative multifunctional nanochip.

- **The Fund for the Public Interest** and **Burnes Scholars**, supporting students in the School of Law, received gifts from Nonnie S. and Richard M. Burnes.

- **Innovation and Entrepreneurship Initiative.** A total of $10 million in gifts from alumni Richard A. D’Amore and Alan S. McKim towards the University’s Innovation and Entrepreneurship Initiative will help launch Northeastern’s new Center for Research Innovation, which will assist faculty and students
across all disciplines of the University in commercializing their research ideas.

- **George J. Kostas Research Institute for Homeland Security.** A gift from alumni George J. Kostas funded a state-of-the-art homeland security research facility.

**University Leadership**

*Joseph E. Aoun* was appointed as the seventh President of Northeastern University in August 2006. An internationally prominent scholar in linguistics and a fellow of the American Academy of Arts and Sciences, President Aoun was awarded the Ph.D. by the Massachusetts Institute of Technology in 1981 and was the inaugural holder of the Anna H. Bing Dean’s Chair and Dean of the College of Letters, Arts & Sciences at the University of Southern California before coming to Northeastern. His presidency has charted an ambitious and distinctive course to advance Northeastern by strengthening the University’s leadership position in experiential and cooperative education; creating global programs with an urban perspective; fostering a research environment where faculty uncover solutions to real-world problems; and building innovating partnerships so that Northeastern can better serve its students, its city, the nation, and the world.

*Stephen W. Director* joined Northeastern University as Provost and Senior Vice President for Academic Affairs in August 2008. A member of the National Academy of Engineering and a Fellow of the Institute of Electrical and Electronic Engineers and of the American Society for Engineering Education, Provost Director has been widely honored for his research in circuits and systems and his contributions to engineering education. Prior to coming to Northeastern, he served as the Provost at Drexel University and as Robert J. Vlasic Dean of the College of Engineering at the University of Michigan.

**THE COLLEGE OF ENGINEERING**

Northeastern’s College of Engineering comprises 111 tenured and tenure-track faculty members and 27 full-time, non-tenure-track professional faculty members organized in four departments: Chemical Engineering; Civil and Environmental Engineering; Electrical and Computer Engineering; and Mechanical and Industrial Engineering. Building and maintaining a world-class faculty that is drawn from a diverse pool of intellectual talent and reflective of the student body in its gender, race and ethnic composition, remains a priority for the College.

The College enrolls more than 2,500 undergraduate students in its ABET-accredited programs and more than 1,100 full-time and 260 part-time graduate students. The College of Engineering’s departments offer undergraduate majors and dual majors in Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Electrical and Computer Engineering, Electrical Engineering and Physics, Industrial Engineering, and Mechanical Engineering. The Graduate School offers MS and PhD degrees in Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Industrial Engineering, and Mechanical Engineering. Also offered are professional master’s programs in Computer Systems Engineering, Energy Systems, Engineering Leadership, Engineering Management, Information Systems, and Telecommunication Systems Management. In addition, interdisciplinary PhD degree programs are offered in Interdisciplinary Studies, Bioengineering, and Information Assurance.

In academic year 2010, the College of Engineering conferred 352 Bachelor of Science, 27 PhD, and more than 350 Master of Science and professional Master degrees. The College’s undergraduate programs have increased notably in size and academic strength in recent years: total undergraduate enrollments grew by 25% between fall 2008 and fall 2011, while over the same period entering freshman SAT scores rose from 1306 to 1375. Growth in the College’s professional master’s programs has also been strong over the past five years, with enrollments more than doubling across the College. Keeping pace with the growth of the professional programs, the number of PhD students supported with research assistantships and fellowships more than doubled from 2006 through 2010.
With over $30 million in new awards in both FY2010 and FY2011, the College of Engineering is a leading contributor to Northeastern’s success in securing external funding. The College vigorously pursues transformative research that supports the broader interdisciplinary research interests of the University, and leads five of the six national research centers at the University, while co-leading the sixth. These research areas include health, sustainability, and security. Much of this research is focused through the College’s interdisciplinary centers of excellence, each of which lead research endeavors at the intersection of disciplines, and several of which also lead multi-institutional partnerships. The core research strengths of the College and its departments lie in biosciences and bioengineering, civil and environmental engineering, communications and signal processing, computer engineering, devices, electromagnetics and wave physics, energy and power, healthcare and bio/medical technology, materials science and engineering, and nanoscience and nanoengineering.

The College’s research thrusts aligned with University themes include:

- Biosciences, Bioengineering, Healthcare Systems, and BioMedical Technology
- Civil and Environmental Engineering
- Communications and Signal Processing
- Computer Engineering
- Devices
- Electromagnetics and Wave Physics
- Energy and Power
- Materials Science and Engineering
- Nanoscience and Engineering

For more information on each of the research groups, please see Appendix.

The College of Engineering occupies approximately 232,000 square feet of space – 184,000 square feet on the Northeastern University campus in Boston, and an additional 48,000 square feet at a new, secure facility for homeland security research on the University’s suburban campus in Burlington, Mass.

The College is headquartered in the Snell Engineering Center, named after University benefactors George A. Snell ’41, and his wife, Lorraine. The building is situated in the heart of the Northeastern campus and houses administrative offices, the Graduate School of Engineering, the vast majority of COE faculty and academic support staff, and three of the College’s four academic departments (the Department of Electrical and Computer Engineering is in the adjoining Dana Research Center).

The Egan Center, opened in 2006, is named for EMC Corp. cofounder Richard Egan (’61) and his wife, Maureen. The Egan Center, a modern showpiece of the Northeastern campus includes research, laboratory, office, and conference space. Major College of Engineering enterprises within the Egan Center include:

- The George J. Kostas (’43) Nanoscale Technology and Manufacturing Research Center, the primary facility for micro- and nanofabrication at Northeastern and featuring classroom space, clean-room and non-clean-room laboratory space, and an area dedicated to student teams working on projects with corporate partners.

- The NSF Nanoscale Science and Engineering Center for High-rate Nanomanufacturing (CHN), which develops tools and processes to enable high-rate/high-volume bottom-up, precise, parallel assembly of nanoelements and polymer nanostructures.

- The Center for Microwave Magnetic Materials and Integrated Circuits, which combines multidisciplinary expertise to develop novel materials and device solutions for use in microwave electronics and multifunctional integrated circuits.
The nearby Stearns Center houses several of the college’s major interdisciplinary initiatives including:

- **Awareness and Localization of Explosives-Related Threats (ALERT)**, a multi-university Department of Homeland Security center of excellence established in 2008 to conduct transformational research, technology, and educational development for effective characterization, detection, mitigation, and response to explosives-related threats facing the U.S. and the world. The ALERT academic partnership is led jointly by Northeastern University and the University of Rhode Island.

- **Versatile Onboard Traffic-Embedded Roaming Sensors (VOTERS)**, established in 2009 as part of the NIST’s Technology Innovation Program, aims to provide a continuous stream of accurate, up-to-date information about the state of roadways and bridge decks gathered by sensor systems mounted on Vehicles of Opportunity, while also eliminating the hazardous, congestion-prone work zones that are often set up to gather this critical data.

- The **Bernard M. Gordon Center for Subsurface Sensing and Imaging Systems (Gordon CenSSIS)**, a multi-university NSF engineering research center founded in 2000 and graduated in 2010. Its mission is to develop new technologies to detect hidden objects and to use those technologies to meet real world subsurface challenges in areas as diverse as noninvasive breast cancer detection and underground pollution assessment. Major funding has been provided by the NSF and by industrialist Bernard Gordon, “the father of analog-to-digital conversion” and the University’s greatest benefactor.

- **The Puerto Rico Testsite for Exploring Contamination Threats (PROTECT) program**, a multi-institution and interdisciplinary collaboration, studies the exposure to environmental contamination in Puerto Rico and its contribution to preterm birth. Through integrated analytical, mechanistic, epidemiology, fate-transport, and remediation studies, along with a centralized, indexed data repository, PROTECT will deliver new knowledge and technology in the area of contaminants of interest to the Superfund Research Program as a potential cause of preterm birth. This multi-institution project is led jointly by Northeastern University and the University of Puerto Rico Medical Sciences Campus and is funded by the NIEHS’ Superfund Research Program.

- **The Gordon Engineering Leadership Program (GEL)**, a professional graduate curriculum focused on in-depth leadership education, pragmatic methods for bringing products to market, and the underlying scientific principles that drive engineering advancements. By closing the “gaps” between industry needs and the output of engineering education, GEL accelerates the development of high-potential engineers and prepares them to successfully lead complex projects earlier in their careers.

The George J. Kostas Research Institute for Homeland Security opened in September 2011 on the university’s campus in Burlington, located along the I-95 technology corridor and 12 miles from the main Boston campus. The building was made possible through a gift from George Kostas ’43, a pioneer in the manufacture of synthetic rubber during World War II. It is Northeastern’s first facility for restricted-access research and includes open and closed laboratory space, offices and conference space. Notable features include independent access control/alarm systems, a Sensitive Compartmented Information Facility (SCIF), and a double-height laboratory with strong floor for structural resilience testing. The building will house research by Northeastern faculty and private industry in cryptology, data security, information assurance, explosives detection, energy harvesting, infrastructure resilience, and other areas critical to the nation’s security.

The Center for Ultra-Wide-Area Resilient Electric Energy Transmission Networks (CURENT) is a collaboration between academia, industry and national laboratories. It will serve as a nation-wide or continent-wide transmission grid that is fully monitored and dynamically controlled in real-time for high efficiency, high reliability, low cost, better accommodation of renewable energy sources, full utilization of energy storage, and accommodation of responsive load. CURENT is a NSF Engineering Research Center and is jointly supported by the NSF and the Department of Energy. It is led by the University of Tennessee, Knoxville and partner institutions include, Northeastern University, Rensselaer Polytechnic Institute and Tuskegee University.
In 2012, space will be inaugurated in 140 The Fenway, Northeastern’s newest campus facility, to be devoted to the College’s computational research.

THE ROLE

As the chief academic and executive officer of the College, the Dean of Engineering reports to the Provost and Senior Vice President for Academic Affairs and serves as a member of the University’s academic leadership team. As the College’s leader, the Dean is responsible for its faculty, staff, and students, as well as for its strategy and implementation of plans, its fiscal resources, fundraising, and physical facilities. The Dean oversees the quality of the College’s academic programs and faculty. She or he supports the faculty of the College in creating a rewarding environment for education, research and scholarship, and service to the University and the community. The Dean also promotes the visibility and reputation of the College both inside and outside the University. Reporting directly to the Dean of the College are six associate deans (for Academic Affairs; Undergraduate Programs; Administration and Finance; Development and Alumni Relations; Research and Graduate Affairs; Faculty and Alumni Affairs) and the chairs of the College’s four departments: Chemical Engineering; Civil and Environmental Engineering; Electrical and Computer Engineering; and Mechanical and Industrial Engineering.

KEY OPPORTUNITIES AND CHALLENGES

The next Dean of Engineering at Northeastern, at an important moment of institutional transition, will play a critical role in advancing the College and University. He or she will:

Advance the College’s strategic and academic goals

Northeastern seeks a Dean who will exercise both academic and strategic leadership to amplify and implement the College’s plans, aligning College goals with the University’s Academic Plan and its aspirations for the future. The College’s five-year strategic plan comprises three core areas, where existing and emerging strengths best position the College for international leadership and recognition—Global Sensing, Smart Health, and Future Cities. Both the College and the University will require a Dean with broad intellectual vision; within these encompassing parameters for the future, the new Dean will have great latitude for entrepreneurship and risk-taking. He or she will effectively solicit and make use of faculty input to expand and create programs to meet the changing demands of society.

Inspire enhanced and expanded scholarship and research

The College plays a pivotal role in achieving the University’s research and scholarship goals for the future. The new Dean must guide and inspire College faculty in order to promote excellent scholarship, increase externally funded research, and continue to develop the distinctive research strengths of the College. She or he will bring a creative and insightful approach to disciplinarity. Interdisciplinary educational and research programs and centers must also be encouraged as ways of building innovation, discovery, and research infrastructure. The new Dean will possess broad intellectual interests and excellent engineering credentials, with the capacity to create an intellectual environment that promotes outstanding research and elevates standards of scholarly excellence.

Sustain educational excellence

Supporting and raising the profile of the College’s graduate programs while sustaining the academic excellence that characterizes the Northeastern undergraduate experience will be a key challenge for the Dean. Experiential education – the integration of theory and practice - is an essential characteristic and competitive advantage of a Northeastern undergraduate education. The new Dean will embrace co-op education and its power in undergraduate learning, and also further develop other forms of experiential education especially well suited to engineering, such as undergraduate research projects and integration into graduate education. The
development of first-rate graduate programs, both research-oriented and professional, with a focus on Northeastern’s interdisciplinary strengths and strategic foci, and the growth and retention of the cadre of top caliber, internationally recognized faculty, are also critical to the graduate educational mission of the College of Engineering. The new Dean will need to support and promote the best possible engineering education across the College, focusing on areas that offer the greatest promise for leveraging strengths across the University.

Lead, develop, and recruit excellent faculty

Northeastern seeks a new Dean who can lead and support the development of accomplished educators and top-flight scholars, bringing their best aspirations and plans to fruition. The next Dean of Engineering will be highly collaborative, an effective and attentive consensus builder. When agreement is not possible, he or she will bring reasoned and honest brokering of academic options and plans. She or he will bring new and current faculty into common purpose, building and sustaining trust within the College and across the University.

In the context of the University’s on-going aggressive faculty recruitment program, ensuring development and retention of the College of Engineering’s current outstanding faculty and attracting exceptional new faculty will be an important focus of the new Dean. Securing and allocating the necessary space and resources to support faculty excellence, in the setting of the usual physical and fiscal challenges and turnover from retirements, will figure significantly in the Dean’s accomplishments.

Promote diversity

The recruitment of women and people of color, as faculty, students, and staff, will be an immediate and special focus for the new Dean of the College of Engineering. While the College has had recent success attracting students and faculty from both groups, its effort must be unflagging and continuously improving. Northeastern is in the third year of an NSF ADVANCE grant focused on institutional change with respect to recruitment, retention, and promotion of women faculty in science and engineering, and in particular women of color, through programs and activities designed to educate existing faculty and leadership about recruitment for excellence and diversity, grow and develop networks, increase collaborative opportunities, and ensure that faculty have effective mentoring regarding career decisions. The new Dean of the College will be an active participant in these efforts as well as bringing her or his experience to bear developing new strategies towards these goals.

Manage and secure resources to advance the College

The Dean will lead fundraising for the College and work to develop entrepreneurial initiatives and new revenue streams. Northeastern seeks as Dean an effective fundraiser and public speaker who will advance the College’s mission and image to alumni, foundations, government funding sources, community leaders, co-op employers, and external partners.

Further expanding the College’s resources is a related critical task for the new Dean. She or he will provide leadership in the College’s funding strategy for improved facilities, faculty research, academic programs at the undergraduate and graduate levels, and strategic partnerships. Over the last several years, the University invested significantly in its academic and research facilities and the College of Engineering made significant advances towards enhancing its solid foundation of teaching and research laboratories to meet its current needs. Advocating for University resources to support clearly defined goals and a well-articulated vision for the College will be a central task for the Dean.

Joining the University in the midst of on-going institutional transformation, the Dean of Engineering must possess strong financial and strategic management skills and provide entrepreneurial leadership for the College’s continuing transition into Northeastern’s relatively new decentralized budget and management system. The new Dean must be financially astute, comfortable with complex budgets, and experienced in data-driven, metrics-based operational environments.
Maintain and build a strong leadership team

An important charge for the new Dean is ensuring that the good work, productivity, and effectiveness of the College’s units continue without interruption during this period of change. Staff and faculty administrators need an agile organization and effective teamwork. The Dean therefore needs to be an experienced mentor and leader of people who can bring together a high caliber, talented team with the skills necessary to support the College’s operations. The College of Engineering needs an excellent manager, open in management style, respectful of alternative viewpoints, and comfortable in and supportive of a collegial environment.

Promote visibility and unique mission

Promoting the College’s national and international reputation during a period of institutional transformation will be an important task for the new Dean. Within the context of the University’s Academic Plan, the College of Engineering is a critical academic unit. Its vision and mission will need to be widely and clearly communicated. The new Dean will be a very good communicator who represents the College within and outside the University, enlisting the help of senior faculty in these endeavors, and raising the unit’s profile and image.

Build a collaborative culture and strengthen links to other units across the University

To advance the College of Engineering and the University overall, the new Dean must be a collaborative leader, working with the other deans and senior academic officers to enhance the interdisciplinary culture that characterizes Northeastern. The Dean will play an important role in building and overseeing the nationally and internationally recognized interdisciplinary research centers of the University and in catalyzing new ones. Building and strengthening intra-institutional and inter-departmental links will be essential to the College’s success in maximizing interdisciplinary research. The College seeks a new Dean with a broad understanding and appreciation of engineering, the natural sciences, computer science, and the health sciences; who will champion collaboration; enhance and leverage links to other departments and colleges; and continue the culture of joint academic appointments and programs at Northeastern.

PROFESSIONAL QUALIFICATIONS AND PERSONAL QUALITIES

Northeastern University seeks a Dean with exemplary academic achievements, together with strategic leadership ability; outstanding interpersonal and communication skills; entrepreneurial spirit and high energy; and a passion for the unique mission of the College and the University. She or he will be able to work effectively with a broad range of constituents, including senior leadership, faculty, students, staff, alumni, donors, and external partners. The successful candidate will bring many of the following skills and qualities:

- An earned doctorate and academic qualifications appropriate for appointment as a tenured full Professor at Northeastern University in the College of Engineering.

- A strong record of distinguished research, teaching, and scholarly publications that exhibit a commitment to academic excellence; outstanding academically qualified candidates from industry, government, and foundations will be considered.

- A strong record of leading the growth and development of academic organizational units, including fund-raising, research, and educational components.

- Demonstrated experience as an intellectual leader.

- Experience in faculty development and a proven track record for leadership in formulating and implementing academic policies, programs, and scholarly activities.

- Demonstrated experience in aligning academic and budgetary priorities and aptitude for entrepreneurship.
• A record of substantial administrative achievement, with a proven ability to recruit and manage a diverse faculty.

• Successful and progressively responsible administrative roles; experience in strategic planning, program assessment, and policy development.

• An understanding and appreciation of cooperative education and experiential learning and their power to enhance student learning.

• Experience in and an appetite for fundraising; the ability to contribute to and lead development efforts and other extramural funding activities, including strengthening alumni relations and building relationships with partners for cooperative education programming.

• Outstanding oral and written communication skills and excellent interpersonal skills.

• A commitment to global education and cultural diversity; the ability to lead a college with a racially, culturally, and economically diverse student body and to recruit and support a diverse faculty and staff.

• Evidence of commitment to the values of academic excellence embodied in the mission statement of Northeastern University and the College of Engineering.

APPLICATIONS AND NOMINATIONS

Northeastern University has retained the services of Isaacson, Miller to assist with this search. Review of applications, nominations and expressions of interest will begin immediately and continue on a confidential basis until an appointment is made. Applicants should send a cover letter, resume or curriculum vitae, and the names and contact information of five references. The electronic submission of materials is preferred. Nominations, applications and inquiries should be forwarded to:

Vivian Brocard, Vice President & Director
Nancy Maull, Vice President
Nureen Das, Senior Associate
Isaacson Miller, Inc.
263 Summer Street, 7th Floor
Boston, MA 02210

Electronic submissions are strongly encouraged to 4421@imsearch.com.

Northeastern University is an Equal Opportunity Employer.
Persons of color and women are encouraged to apply.
Appendix

The College of Engineering’s research thrusts are aligned with the University’s strategic themes. These thrusts are multidisciplinary both in research and faculty expertise.

**Biosciences, Bioengineering, Healthcare Systems and BioMedical Technology**

- *The Biomedical Imaging and Signal Processing Group* focuses on various aspects of biological/biomedical imaging and image processing, as well as signal processing technologies and applications.
- *The Biomechanics and Mechanobiology Group* focuses on computational and experimental applied mechanics problems related to various aspects of biological and biomedical technologies and applications.
- *The BioMEMs/BioNano Group* focuses on biological applications of micro and nanofabricated systems, nanobiomechanics, and nanostructured biomaterials.
- *The Biochemical and Bioenvironmental Engineering Group* focuses on pharmaceutical bioprocessing, biomaterials, tissue engineering, drug delivery, environmental microbiology, biotreatment and bioremediation, and environmental modeling.
- *The BioMotor Control Group* capitalizes on the collective expertise of cross-disciplinary collaborations between existing Northeastern faculty whose research lies at the intersection of sensory motor control systems, neuroscience, and dynamics.
- *The Biocomputing Group* draws on strengths in computer engineering and computation applied to bioengineering applications.
- *The Center for Health Organization Transformation* is a multi-university healthcare systems engineering research center which conducts applied research on solutions to problems of common interest throughout healthcare. The Northeastern University site is part of a consortium of nationally renowned faculty working in healthcare systems engineering, industrial engineering, operations research, and management science.
- *The New England Healthcare Engineering Partnership (NEHCEP)*, a Veterans Administration Center of Excellence, pursues development and implementation of innovative solutions to dramatically improve process quality, access, safety, efficiency, and performance throughout the VA health system, as well as New England and U.S. healthcare processes more broadly.
- *The Biomedical Mechatronics Group* focuses on studying the design, fabrication, control and testing of novel robotic and mechatronic systems for medical applications.
Civil and Environmental Engineering

- The Sensors and Infrastructures Group focuses on developing methods, strategies, and systems that can use state-of-the-art sensing technologies to monitor infrastructure, allowing immediate assessment of functionality and provide data for diagnostics.
- The Urban Waters Group focuses on urban water environment and public health modeling, treatment and remediation to provide a healthy water environment for human and ecological life.
- The Natural and Manmade Hazards Group focuses on characterizing magnitude and return period, designing for probabilistic worst-case conditions, and developing mitigation measures, including improved design to lessen the environmental threat created by natural and manmade hazards.

Communications and Signal Processing

- The Communications and Signal Processing Group conducts research in the areas of communications, digital and image signal processing, and control systems.

Computer Engineering

- Embedded Systems, a high-growth area in computer science and engineering, develops both hardware and software systems that span the range of cell phones to high performance imaging systems.
- Security and Virtualization: Security has become a critical technology issue, and virtualization has become a key technology enabler for such applications as intrusion detection systems; spam filtering; and digital watermarking.
- High Performance Computing: Developing new compiler and libraries to exploit the current move to many core systems and GPUs. Focus areas include multi-GPU acceleration and biomedical applications.
- The Machine Learning and Computer Vision Group pursues research into machine learning, data mining, pattern recognition, medical image analysis and tracking.
- The Networks Group focuses on the growing importance of wireless and wired communication networks and the increasing diversity of networking solutions and standards.
- The VLSI and Testing Group focuses on high speed digital/analog integrated circuit design, clocking scheme for high performance VLSI systems including on-chip clock skew analysis and clock distribution, high speed integrated circuit signal integrity and physical CAD tool development, low power and high speed circuit design methodology and technology.
Devices

- The Devices Group conducts research on novel magnetic, ferroelectric and multiferroic materials and devices, MEMS, nanotechnology, optical devices and sensors.

Electromagnetics and Wave Physics

- The Physics-Based & Computational Electromagnetics Group focuses on signal processing and imaging, inverse problems in remote sensing, antennas and sensors, landmine detection, microwave/millimeterwave electronics and RF-integrated circuits, and bioelectromagnetics.
- The Algorithms & Instrumentation for Sensing and Imaging Group focuses on developing new technologies to detect hidden objects and use those technologies to meet real-world subsurface challenges in areas as diverse as noninvasive breast cancer detection and underground pollution assessment.
- The Optics and Optical Devices Group focuses on coherent detection of light; multi-modal imaging; technology for imaging in highly cluttered environments; fabrication of photonic micro- and nanostructures and their applications in sensing and optical signal processing; and the application of optical engineering to biomedicine.
- The Acoustics Group focuses on remote sensing with acoustics and ultrasonics, and on underwater acoustic communications, with applications including long range acoustic detection, localization, and inference of underwater vehicles, geology, fish, and other objects in the ocean; and imaging for biomedical and military applications.

Energy and Power

- The Combustion and Energy Group focuses on both experimental and theoretical combustion studies, and clean energy related problems, including combustion modeling; internal and external combustion engines; incineration of municipal and hazardous wastes; atmospheric pollution, energy conservation and clean power generation techniques; and fire extinction.
- The Power Systems Group focuses on power systems monitoring, fault identification in transmission and distribution networks, power electronics, motion control, nonlinear systems and control.

Materials Science and Engineering

- The Advanced Functional Materials Group explores the development of biopassive/bioactive coatings for neurological implants; electrodeposited nanomaterials for corrosion; nanostructured metal matrix composites; metamaterials; and single and mixed oxide aerogel structures.
- The Interface Engineering Group focuses on the ultra-high vacuum environment to study, at the atomic level, the growth and processing of thin films and nanostructures. Areas include multifunctional materials and biosensors.
• The Electronic/Magnetic Materials Group explores novel microwave magnetic materials and device solutions for use in microwave electronics and multifunctional integrated circuits.
• The Advanced Materials Processing Group pursues research on rapid solidification processing; nonequilibrium processing; powder metallurgy; processing-structure-property relationships in materials; materials processing for advanced manufacturing; and ultrasonic processing of materials.

Nanoscience and engineering

• The Nanomanufacturing Group pursues scalable processes for the production of nanomaterial-based devices, the production of new devices based on differentiating nanotechnologies, and enabling technologies for the transition of nanotechnology to industrial production.
• The Nanoparticles and Nanowires Group aims to understand, discover, and develop novel electrodeposited nanomaterials that find potential uses in electronic, solar, and detection applications.