



UNIVERSITY OF NEBRASKA-LINCOLN  
COLLEGE OF ENGINEERING

**STRATEGIC PLAN: Addendum**

*Update: 11 December 2013*

## Addendum Overview

On 20 September 2013, the University of Nebraska Board of Regents unanimously endorsed the 5-year strategic plan of the College of Engineering. Per the Regents' request, this addendum has been prepared to provide additional details regarding implementation of that plan. This document consists of two parts. The first part contains tables showing 5-year goals and intermediate metrics for the initial two years. These are principally reproduced from the original strategic plan documents. The additions here are a more detailed cost estimate to realize the plan. We also incorporated enrollment and graduation data available since the September BOR meeting into our projections. For example, it appears that the recruitment infrastructure CoE built over the last two years is paying dividends, as the numbers of admitted students have increased by 105 in Lincoln and 40 in Omaha over this time one year ago (with equal or higher admission standards).

In order to achieve both the near term and longer term goals, there is a significant amount of remedial organization and process development work that needs to be done. It is widely recognized that the College's inability to realize its potential in the past was due, in large part, to the lack of organizational structure and accountability. This has been the primary focus of activity over the past two years and will likely continue for some time into the future. The second part of this addendum, then, contains categorized lists of the operational activities needed to ensure that the planned growth of the College will be strategic, structured, highly professional and sustainable.

## Part I: Five Year Targets with Near Term Interim Metrics and Resource Needs

**Table 1: Target enrollment and research metrics for the College**

	2013 Actuals	2014 Actuals / Pro- jected	2015 Projected	2018+ Goals
<b>Enrollment – Undergraduate</b>				
Undergraduate – Lincoln	1,920	1,964	2,050	2,400
Undergraduate – Omaha	782	787	850	1,200
Undergraduate Total	2,702	2,751	2,900	3,600
<b>First Year Retention in Engineering</b>	<b>2012 Actual</b>			
First-Year Retention – Lincoln	72.1%	73%	75%	90%
First-Year Retention – Omaha	65.6%	66%	70%	90%
First-Year Retention Total	70.1%	71%	72%	90%
<b>Six-Year Graduation Rate in Engineering</b>	<b>2012 Actual</b>			<b>2023+ Goal</b>
Six-Year Graduation – Lincoln	50.4%	51%	55%	70%
Six-Year Graduation – Omaha	42.1%	43%	45%	70%
Six-Year Graduation Total	47.9%	49%	50%	70%
<b>Professional Masters</b>				
Professional Masters – Lincoln	-	-	10	100
Professional Masters – Omaha	-	-	25	200
Professional Masters Total	-	-	35	300
<b>Master of Science / Ph.D.s</b>				<b>2023+ Goal</b>
M.S. / Ph.D. – Lincoln	300	300	320	600 – 650
M.S. / Ph.D. – Omaha	100	100	105	350 – 400
M.S. / Ph.D. Total	400	400	425	1,000
<b>Research Expenditures</b>				<b>2023+ Goal</b>
Research Expenditures – Lincoln	\$30.6M	\$31M	\$33M	\$56 – \$70M
Research Expenditures – Omaha	\$3.3M	\$4M	\$5M	\$28 – \$35M
Research Expenditures Total	\$33.9M	\$35M	\$38M	\$84 – \$105M
<b>Tenured / Tenure-Track Faculty</b>				
Tenured / Tenure-Track Faculty – Lincoln	122	122	127	142
Tenured / Tenure-Track Faculty – Omaha	43	43	48	73
Tenured / Tenure-Track Faculty Total	165	165	175	215
<b>Research Expenditures - Faculty</b>				<b>2023+ Goal</b>
Research Expenditures / T/TT Faculty – Lincoln	\$250,819	\$254,098	\$259,843	\$400 - \$500K
Research Expenditures / T/TT Faculty – Omaha	\$ 76,744	\$93,023	\$104,167	\$400 - \$500K
Research Expenditures / T/TT Faculty Total	\$205,455	\$212,121	\$217,143	\$400 - \$500K

**Table 2: Summary of additional resources required to implement the growth plan.**

	2015	2016	2018+ Goals
<b>College Growth Faculty Hiring</b> College Faculty Growth – Omaha (2 senior, 4 junior hires / year) College Faculty Growth – Lincoln (2 senior, 2 junior hires / year) College Growth Faculty Hiring Total	\$1.0M \$0.75M \$1.75M	\$1.0M \$0.75M \$1.75M	\$5.0M \$3.75M \$8.75M
<b>Replacement Faculty Hiring</b> Replacement Faculty Hiring Total (assume 10 junior hires / year)	\$1.25M	\$1.25M	\$6.25M
<b>Professors of Practice Faculty Hiring</b> Professors of Practice – Omaha (6 hires over 5 years) Professors of Practice – Lincoln (6 hires over 5 years) Professors of Practice Hiring Total	\$0.16M \$0.16M \$0.33M	\$0.33M \$0.33M \$0.67M	\$1.0M \$1.0M \$2.0M
<b>Staff Hiring</b> Staff Hiring – Omaha Staff Hiring – Lincoln Staff Hiring Total	\$0.10M \$0.15M \$0.25M	\$0.10M \$0.15M \$0.25M	\$0.50M \$0.75M \$1.25M
<b>College Growth Faculty Start-Up (One Time Cost)</b> Faculty Start-Up – Omaha Faculty Start-Up – Lincoln Faculty Start-Up Total	\$4.0M \$3.0M \$7.0M	\$4.0M \$3.0M \$7.0M	\$20.0M \$15.0M \$35.0M
<b>Replacement Faculty Start-Up (Recurring)</b> Faculty Start-Up Total (\$0.5M / junior hire; \$1M / senior hire)	\$5.0M	\$5.0M	\$25.0M
<b>Additional Resource Needs</b> Seed Funding for College-wide Research Initiatives (e.g. PKI Big Data and Civil Infrastructure/Construction) Recurring Equipment / Infrastructure Upgrades / Replacement	\$1.0M \$1.0M	\$1.0M \$1.0M	\$5.0M \$5.0M

**Table 3: Summary of additional space required to implement the growth plan.**

<p><b>New Office Space for Faculty Growth (150 sq.ft. / faculty)</b>  New Faculty Office Space Needs – Omaha  New Faculty Office Space Needs – Lincoln  New Faculty Office Space Needs Total</p>	<p><b>2018 Goals</b>  4500 sq.ft.  3000 sq.ft.  7500 sq.ft.</p>	<p><b>2018 Goals</b>  \$1.8M  \$1.2M  \$3.0M</p>
<p><b>New Office Space for Graduate Student Growth (50 sq.ft. / student)</b>  New Graduate Student Office Space Needs – Omaha  New Graduate Student Office Space Needs – Lincoln  New Graduate Student Office Space Needs Total</p>	<p><b>2023 Goals</b>  14,000 sq.ft.  21,000 sq.ft.  35,000 sq.ft.</p>	<p><b>2023 Goals</b>  \$5.6M  \$8.4M  \$14.0M</p>
<p><b>New Research Laboratory Space Needs (500 sq.ft. / new faculty)</b>  New Research Laboratory Space – Omaha  New Research Laboratory Space – Lincoln  New Research Laboratory Space Needs Total</p>	<p><b>2023 Goals</b>  15,000 sq.ft.  10,000 sq.ft.  25,000 sq.ft.</p>	<p><b>2023 Goals</b>  \$6.0M  \$4.0M  \$10.0M</p>
<p><b>New Office Space for Staff Growth and Operations</b>  Staff and Operational Office Space Needs – Omaha  Staff and Operational Office Space Needs – Lincoln  Staff and Operational Office Space Needs Total</p>	<p><b>2018 Goals</b>  1,500 sq.ft.  2,250 sq.ft.  3,750 sq.ft.</p>	<p><b>2018 Goals</b>  \$0.6M  \$0.9M  \$1.5M</p>
<p><b>New Classroom Space Needs</b>  Classroom Space – Omaha  Classroom Space – Lincoln  Classroom Space Total</p>	<p><b>2018 Goals</b>  30,000 sq.ft.  30,000 sq.ft.  60,000 sq.ft.</p>	<p><b>2018 Goals</b>  \$12.0M  \$12.0M  \$24.0M</p>
<p><b>New Educational Laboratory Space Needs</b>  Educational Laboratory Space – Omaha  Educational Laboratory Space – Lincoln  Educational Laboratory Space Needs Total</p>	<p><b>2018 Goals</b>  3,000 sq.ft.  3,000 sq.ft.  6,000 sq.ft.</p>	<p><b>2018 Goals</b>  \$1.2M  \$1.2M  \$2.4M</p>
<p><b>Renovation of Existing Space</b>  Renovation of Existing Space – Omaha  Renovation of Existing Space – Lincoln  Renovation of Existing Space Total</p>		<p><b>2018 Goals</b>  \$1.5M  \$3.5M  \$5.0M</p>

## Part II: Implementation Activities

### Undergraduate Education:

- Formulate and standardize academic policies and procedures across departments and across the College including:
  - DFW policy
  - Grade appeal
  - Drop policy
  - Minors
  - 2<sup>nd</sup>/dual degree
  
- Integrate recruitment, admissions and retention programs and processes across the College including:
  - consolidate independent and uncoordinated Engineering undergraduate recruitment efforts in Omaha into a single, focused college-wide enterprise.
  - hire and place an Omaha based COE Director for Recruitment.
  - hire and place a COE Senior Director of Student Services charged with providing uniform services across the entire COE.
  - expand COE student services offices and offerings in Omaha.
  - broaden career services for COE students in Omaha.
  - Admissions to the college
  - Professional admissions
  - Building student services capabilities
  - Modernizing recruiting and admissions processes
  - Building professional advising staff
  - Career services
  - Coordinating scholarship processes
  - Building academic mentoring and coaching capabilities
  
- Assess, upgrade and allocate space/facilities
  - Renovating labs
  - Modernizing classrooms
  - Allocating space
  - Building student services space
  
- Assess, streamline, integrate and improve curricula within departments and across the College:
  - Develop the essential non-technical skills curriculum
  - Imbue a culture of continuous improvement of teaching and learning
  - Create College-wide freshman experience courses
  - Instill a culture of cross-disciplinary collaboration between departments in both core and elective courses.
  - Introduce Electrical Engineering degree in Omaha.
  
- Develop partnerships and programs for study abroad
  - Tampere University of Technology (Finland)
  - Leipzig University (Germany)

- Nanyang Technical University (Singapore)
  - Indian Institute of Technology – Madras & Delhi
  - Xi’an Jiao Tong University (China)
  - Leeds University (United Kingdom)
  - Biebrach University (Germany)
  - University of Victoria (Australia)
- Develop and coordinate K12 STEM outreach efforts

## **Graduate Programs**

1. Recruitment
  - Improving college-wide efforts on graduate student recruitment
    - Participation in Big10+ Graduate School Fair at Purdue
    - Improved management of college-wide graduate recruitment fellowships
    - Better coordination with UNL Office of Graduate Studies (initiating Talisma campaigns, developing additional NSF REU site proposals)
2. Student Development
  - Re-invigorate Engineering Graduate Student Board, including sponsorship of social and professional development activities
  - Improved management of Graduate Student Awards, including Outstanding GTA, GRA, MS Thesis, Doctoral Dissertation, and Outstanding Poster awards (in conjunction with Spring UNL Research Fair)
3. Administration of Graduate Programs
  - Master’s of Engineering Management proposal
  - Coordinating PKI graduate student issues with UNL Office of Graduate Studies
  - Improved management of interdisciplinary PhD programs in Biomedical Engineering and Materials
  - Better coordination with and across all CoE Graduate Committee Chairs

## **Faculty Development**

- Development of CoE Professor of Practice guidelines
- Dean’s office liaison to EE/CEEN merger committee
- Promoting collegiality through monthly coffee hours and targeted faculty group lunches (e.g. female faculty; new tenure-track faculty)
- Improved management of faculty awards, etc.

## **Research:**

- develop technology focus concept(s); *i.e.* big data and civil infrastructure/construction.
- engage industry and government partners.
- form research teams and articulate research thrusts.
- develop detailed technology focus program plan(s).
- solicit \$5M in seed funding from corporate partners and private donors to initiate research for two years.
- develop and implement marketing plan to build sustained funding beyond initial seed funding.

- expand research funding with a target of \$5M+ per year research expenditures.
- expand publication rates per tenured/tenure-track faculty member to 2+ archival publications per year.
- expand research activities.

**Administration:**

- Develop accurate, reliable, real-time student and research data bases.
- Develop College-wide processes for hiring and promotions.
- Create intra-college staff communications mechanisms.

**Financial:**

- Partner with SVCAA and SVCBF in developing a five-year Strategic financial plan.
- Hired a Budget Analyst 12/1/2013
  - Work closely with foundation in optimizing use of foundation funds
  - Work on the Scholarship oversight team to track available dollars, expenditures, and offers, to maximize the use of these funds.
  - Work with Coordinators on a monthly basis to monitor expenditures.
- Work with the business office and coordinators to self-assess the college's best practices using the Office of Internal Audit's Business Process and Assessment Tools.
- All staff will begin enhancing their skills with both Excel and Access.
- Create and enhance financial reporting tools for the college.
- Review and enhance Standard Operating Procedures in the following areas: Human Resources, Purchasing, Equipment Systems, Grants, Foundation and Accounting.
- Incorporate an Electronic Flow of Information within the College.
- Restructure the research department. This includes upgrading a grants manager position to a director of research, adding data base management and financial reporting development to a current grants manager position and moving grant specialists into the departments that will be responsible for grant management from pre-award to past-award. New Grant Specialist located in Omaha.
- Provide improved financial reports to faculty for their research accounts with new tools developed by research team.
- Create training modules for new employees for grants, business and finance and Human Resources using both college resources of and training available through the University.
- Provides periodic training for staff and faculty to strengthen the research enterprise of the CoE.
- Create dashboards and provide updates for research expenditures and proposals, at the College, department/unit and PI levels.
- Create and maintain a database of faculty research areas of strength and research interests.
- Work with CoE Web Master to create a dynamic web page for Research.