



College of Engineering and Mines

Strategic Plan

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PREAMBLE

The University of North Dakota (UND) College of Engineering and Mines (CEM) has developed its Strategic Plan comprising six Vision Building Blocks (VBB): Graduates, Education, Research, Work Environment, Community, and Alumni. This Strategic Plan will ensure that the UND College of Engineering and Mines: 1) graduates competitively skilled engineers for the global market, 2) provides personalized engineering education including technical, innovation, entrepreneurship and leadership skills, 3) achieves excellence in research and technology transfer, 4) fosters an inspiring and high-performance work environment, 5) responsibly engages the community and region, and 6) promotes success of our alumni and engages them in College initiatives. Specific objectives, action items and metrics of success have been identified for each VBB to guide both short- and long-term planning within the College.

The Strategic Plan is the product of a process designed to seek input from and encourage ownership by CEM faculty, staff, students, alumni, and community leaders. The process included: 1) the efforts of a Planning Team, comprising fifteen CEM faculty and staff members, who crafted the VBBs, goals and major initiatives during the 2008-2009 academic year, 2) several open forums held in 2009-2010 to solicit feedback from faculty, staff, students, alumni and community leaders, 3) focused three-to-four member teams selected from twenty faculty and staff who translated the goals for each VBB into specific objectives and concrete action items, 4) integration of the action items and development of necessary metrics for assessment of progress by the CEM Leadership Team during the summer of 2010, 5) editing by a select group of CEM Leadership Team members during the summer of 2010 to provide consistency across the VBBs, 6) distribution of the draft document to CEM faculty to solicit their input, and 7) incorporation of faculty and staff comments into the current version of the Strategic Plan.

This living document has been revised in November 2014 and will continue to be reviewed and updated periodically to maintain its relevance to the missions of UND, CEM, and the CEM academic units.

VISION BUILDING BLOCKS

Vision Building Blocks

VBB-1 Graduates

We will produce graduates who will advance society, be competitive in a dynamic global market, and contribute to the economic development of North Dakota, the nation, and the world.

VBB-2 Education

We will provide students with a personalized education - fostering innovation and emphasizing technical, leadership, and entrepreneurship skills.

VBB-3 Research

We will be internationally recognized for excellence in research - fostering discovery, serving societal needs, and stimulating technology transfer.

VBB-4 Work Environment

We will foster an inspiring, supportive, high-performance, team-based work environment.

VBB-5 Community

We will engage the community to promote engineering and innovation, inspire young minds, help the regional economy thrive, and display civic responsibility.

VBB-6 Alumni

We will promote the accomplishments of our alumni, engage them in College initiatives, and serve as a resource for the advancement of their success.

GOALS

VBB-1 Graduates

We will produce graduates who will advance society, be competitive in a dynamic global market, and contribute to the economic development of North Dakota, the nation, and the world.

Goals

1. We will foster creativity and innovation.
2. We will train our students to evaluate the impact of deploying new technology on society.
3. We will integrate state-of-the-art technical knowledge with strong business and leadership skills.
4. We will prepare our students to function successfully in team-based, multicultural, and international settings.

VBB-2 Education

We will provide students with a personalized education - fostering innovation and emphasizing technical, leadership, and entrepreneurship skills.

Goals

1. We will provide a personalized learning environment with appropriate class sizes, continuous mentoring, and a high degree of access to faculty and staff.
2. We will work with our students to design customized educational plans that will meet their individual career goals.
3. We will prepare our students to develop innovative technical solutions to a broad range of engineering and science problems.
4. We will provide our students with strong leadership and entrepreneurship skills and an understanding of the importance of ethical behavior.

VBB-3 Research

We will be internationally recognized for excellence in research - fostering discovery, serving societal needs, and stimulating technology transfer.

Goals

1. We will establish signature research programs of national and international distinction.
2. Our research and expertise will have a positive impact on the state of North Dakota, the nation, and the world.
3. We will collaborate with other academic disciplines, universities, research centers, and industry.
4. We will foster an environment of discovery and creativity through resource allocation, mentoring, and recognition.
5. We will create opportunities for undergraduate and graduate students in research.

VBB-4 Work Environment

We will foster an inspiring, supportive, high-performance, team-based work environment.

Goals

1. We will provide resources to support the advancement of our faculty and staff.
2. We will enable and reward creative solutions, productivity, and a professional work atmosphere.
3. We will foster and encourage team building, collaborative work attitudes and practices, and the cooperative integration of research and education.

VBB-5 Community

We will engage the community to promote engineering and innovation, inspire young minds, help the regional economy thrive, and display civic responsibility.

Goals

1. We will offer creative outreach programs to inform and excite young people about engineering career opportunities and how engineers shape our future.
2. We will develop relationships with businesses, agencies, and organizations to help meet their emerging technological challenges, needs, and community societal and economic development.

VBB-6 Alumni

We will promote the accomplishments of our alumni, engage them in College initiatives, and serve as a resource for the advancement of their success.

Goals

1. We will track and publicize the career paths and accomplishments of our alumni.
2. We will track the professional development needs of our alumni and create programs and opportunities for their lifelong advancement.
3. We will involve our alumni in the creation and execution of College initiatives.

Objectives And Action Items

**Vision Building Block 1
Graduates**

We will produce graduates who will advance society, be competitive in a dynamic global market, and contribute to the economic development of North Dakota, the nation, and the world.

Goal 1: We will foster creativity and innovation.

Objectives	Action Steps	Assessment Metric(s)
<p>1.1 We will produce graduates who are motivated to pursue innovative solutions to engineering and scientific problems.</p>	<p>1.1.1 Develop forums for the creative exchange of ideas to foster a culture of innovation.</p> <p>1.1.2 Blend rigorous fundamental training with engaging, open-ended design and thesis opportunities throughout the curricula including capstone experiences for all students.</p> <p>1.1.3 Provide ABET-accredited curricula that develop students' ability to identify engineering and scientific problems and identify practical, innovative solutions.</p>	<p>1.1.1 Two forums were sponsored each year.</p> <p>1.1.2a Metrics for engineering students included in ABET assessments - at least 80% positive response achieved for criteria b and c.</p> <p>1.1.3 Metrics for engineering students included in ABET assessments - at least 80% positive response achieved for criterion e.</p>
<p>1.2 We will produce graduates who have experienced hands-on experiential and professional learning experiences throughout the curricula.</p>	<p>1.2.1 Provide laboratory experiences incorporating modern engineering and scientific tools and techniques throughout the curricula.</p> <p>1.2.2 Provide training opportunities in multiple modes of professional communication throughout the curricula.</p> <p>1.2.3 Provide opportunities and support for student participation in research projects guided by CEM faculty and staff. See also</p>	<p>1.2.1 Metrics for engineering students included in ABET assessments - at least 80% positive response achieved for criterion b.</p> <p>1.2.2 Metrics for engineering students included in ABET assessments - at least 80% positive response achieved for criterion g.</p> <p>1.2.3 Fifteen percent of our undergraduate students participated in faculty- or staff-directed research</p>

	<p>VBB3 Action Steps 5.1.1-5.1.3.</p> <p>1.2.4 Encourage and support publication of student research results in journals and conference proceedings.</p> <p>1.2.5 Solicit and promote students internships, cooperative education placements and other training opportunities with industry, national laboratories, and academic institutions.</p>	<p>projects.</p> <p>1.2.4 Seventy-five percent of papers published by authors in CEM include student authors or co-authors.</p> <p>1.2.5a Fifty percent of all undergraduate students will obtain internships and/or cooperative education positions prior to graduation.</p> <p>1.2.5b Metrics for student and employer satisfaction included in current co-op structure - at least 80% positive response achieved.</p>
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Goal 2: We will train our students to evaluate the impact of deploying new technology on society.

Objectives	Action Steps	Assessment Metric(s)
<p>2.1 Graduates can identify the social, environmental, and economic impacts of engineering and scientific problems and their solutions.</p>	<p>2.1.1 Implement discussions, activities and assignments that address the impacts of scientific and/or engineering problems on society, the environment, and the economy throughout the curricula.</p> <p>2.1.2 Support seminars and workshops on broadly applicable topics to illustrate engineering problems and problem solving methods.</p>	<p>2.1.1a Metrics for engineering students included in ABET assessments - at least 80% positive response achieved for criterion h.</p> <p>2.1.1b All Geology majors demonstrate an understanding of the effects of scientific and engineering activities on society, the environment, and the economy as assessed in GEOL 256</p> <p>2.1.2a Two seminars were sponsored by CEM each year.</p> <p>2.1.2b All graduates have attended two professional seminars or workshops.</p>

	2.1.3 Promote and support student participation in organizations that promote social, environmental, and economic awareness in the community (e.g. professional organizations, student societies, and mentoring programs).	2.1.3 Seventy-five percent of all graduates participated in at least one relevant organization.
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Goal 3: We will integrate state-of-the-art technical knowledge with strong business and leadership skills.

Objectives	Action Steps	Assessment Metric(s)
3.1 Graduates can take on challenging business career opportunities relevant to engineering and the geosciences.	<p>3.1.1 Facilitate mentorship opportunities and workshops for students to gain entrepreneurial experience and knowledge.</p> <p>3.1.2 Promote and encourage students to participate in the Leadership Certificate program coordinated by the Jodsaas Center.</p> <p>3.1.3 Promote and encourage students to use entrepreneurial services provided by the Jodsaas Center.</p>	<p>3.1.1 CEM will sponsor two mentorship opportunities/workshops related to entrepreneurial experience each year.</p> <p>3.1.2 Ten CEM students will receive the Leadership Certificate each year.</p> <p>3.1.3a Two CEM-related startup groups make use of services offered by the Jodsaas Center each year.</p> <p>3.1.3b Twenty students enrolled in CEM-sponsored leadership and/or entrepreneurship courses each year.</p>
3.2 Graduates are capable of assuming leadership responsibilities.	<p>3.2.1 Facilitate mentorship opportunities and workshops for students to gain leadership experience and knowledge.</p> <p>3.2.2 Encourage students to develop an understanding of the role of a team leader through</p>	<p>3.2.1 CEM sponsored two mentorship opportunities/workshops related to leadership experience each year.</p> <p>3.2.2 All under graduates will have participated in one seminar related to</p>

	<p>Jodsaas Center leadership seminars with local industrialists and academic experts.</p> <p>3.2.3 Foster student involvement and leadership by recognizing students who have served as officers or active participants in student or service organizations.</p>	<p>leadership sponsored by the Jodsaas Center or in leadership-focused activities integrated into the curriculum.</p> <p>3.2.3 Student leaders and active participants in student/service organizations have been publicly recognized each year.</p>
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Goal 4: We will prepare our students to function successfully in team-based, multicultural, and international settings.

Objectives	Action Steps	Assessment Metric(s)
4.1 Graduates are prepared to function successfully in settings where independent work is required or where they are expected to be the primary source of expertise for a broad range of knowledge and skills.	<p>4.1.1 Provide curricula that offer opportunities for breadth of knowledge/diversity of understanding, depth of focus and specialization, as well as extensive team-based design experience</p> <p>4.1.2 Facilitate presentations by experts on timely scientific, engineering, and professional topics to expand the breadth of the educational opportunities for our students.</p>	<p>4.1.1a Metrics for engineering students included in ABET assessments - at least 80% positive response achieved for criteria d, e, h, and k.</p> <p>4.1.1b Eighty percent of Geology majors express satisfaction at both breadth and depth of curriculum.</p> <p>4.1.2 Six presentations sponsored per year on timely engineering and scientific topics for all students.</p>
4.2 Graduates are prepared to function successfully in a wide range of projects involving a team-based approach to problem solving, reflecting the importance of successful multicultural	4.2.1 Provide regular presentations and workshops intended to foster a team-based mindset in students and faculty for career opportunities and advancement.	4.2.1 Two workshops/training opportunities related to teamwork were facilitated each year.

<p>collaborations.</p>	<p>4.2.2 Leverage DEDP student perspectives to increase the diversity of viewpoints on design teams, undergraduate laboratory classes, special projects, etc.</p> <p>4.2.3 Encourage student organizations to fully embrace student diversity.</p> <p>4.2.4 Facilitate opportunities for international experiences for our students.</p>	<p>4.2.2a Ten percent of graduates will have had an experience of collaborating with an off-site team member.</p> <p>4.2.2b Ten percent of upper-division courses will include a mechanism for information sharing between DEDP and on-campus students</p> <p>4.2.3a One event related to diversity was sponsored each year.</p> <p>4.2.3b All student leaders have taken diversity training.</p> <p>4.2.4 Five students have participated in international experiences each year.</p>
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	1.2.3 Ensure relevant class sizes to enable achievement of course objectives.	1.2.3a Course enrollments across CEM reviewed annually by Leadership Team and deviations from CEM Workload Plan discussed.
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Goal 2: We will work with our students to design customized educational plans that will meet their individual career goals.

Objectives	Action Steps	Assessment Metric(s)
2.1 We will help students identify their goals and design an educational plan.	2.1.1 Provide listing of resources to help students identify goals. 2.1.2 Train faculty and students on designing an educational plan.	2.1.1 Academic advisors and students are notified annually about the listing of campus resources by the Student Experience and Outreach Office. The currency of the resource listing is assessed annually. 2.1.2 Student Experience and Outreach Office, in coordination with applicable student groups, will hold at least one session each year for students to help in developing academic plans.
2.2 We will allow flexibility in the curricula for students to customize their program of study within the constraints provided in the UND catalog.	2.2.1 Offer a wide range of electives and allow flexibility within the student's program of study to take courses that help meet their educational and career goals. 2.2.2 Annually review curricula and update for currency and flexibility as needed.	2.2.1 Achieve 80% overall approval rating for required and elective course availability based upon student exit interviews. 2.2.2 Curriculum reviewed annually as a part of each department's ABET retreat

Goal 3: We will prepare our students to find innovative technical solutions to a broad range of engineering and science problems.

Objectives	Action Steps	Assessment Metric(s)
3.1 We will provide students with a strong and broad technical	3.1.1 Continue to assess and update curriculum to ensure	3.1.1a Metrics for engineering curriculum

<p>education.</p>	<p>students develop strong core technical skills needed now and in the future.</p> <p>3.1.2 Develop a systematic methodology to provide College-wide assessments of curricula to optimize resources.</p>	<p>included in ABET assessments.</p> <p>3.1.1b Geology curriculum is assessed and updated at least every two years.</p> <p>3.1.1c Graduate curriculum is continually assessed in accordance to each department's assessment plan</p> <p>3.1.2 The Academic Programs Committee performed a College-wide assessment of curricula (graduate and undergraduate) and associated assessment plans every three years to ensure students are provided with a strong and broad technical background while looking for possible redundancies among the departments.</p>
<p>3.2 We will foster innovative problem-solving traits across the curriculum.</p>	<p>3.2.1 Implement best practices to incorporate innovation, creativity, open-ended problem instruction, and cooperative learning activities across the curricula.</p>	<p>3.2.1 Metrics for engineering students included in ABET assessments - at least 80% positive response achieved for criteria b, c, e, i, k.</p>

Goal 4: We will provide our students with strong leadership and entrepreneurship skills and an understanding of the importance of ethical behavior.

Objectives	Action Steps	Assessment Metric(s)
<p>4.1 We will provide students with leadership training and experience.</p>	<p>Refer to Vision Building Block 1, Action Items 3.2.1 - 3.2.4.</p>	
<p>4.2 We will provide students with entrepreneurial training and experience.</p>	<p>Refer to Vision Building Block 1, Action Items 3.1.1 - 3.1.3.</p>	
<p>4.3 We will provide students with</p>	<p>4.3.1 Incorporate ethical</p>	<p>4.3.1a All under graduates</p>

<p>training and practice in ethical decision-making.</p>	<p>decision-making case studies in multiple courses across the curricula.</p> <p>4.3.2 Adapt and emphasize an honor code for faculty, staff, and students.</p> <p>4.3.3 Incorporate professional practice and similar standards, in courses across the undergraduate curricula.</p>	<p>have taken at least one course incorporating ethical decision-making case studies.</p> <p>4.3.1.b All graduates will meet the Responsible Conduct of Research requirements established by the Research, Development and Compliance Office</p> <p>4.3.1.c Metrics for engineering students included in ABET assessments – at least 80% positive response achieved for criterion f.</p> <p>4.3.2 An Honor Code is In place and followed by all students, faculty, and staff</p> <p>4.3.3 All under graduates have taken at least one course incorporating the knowledge of professional practice standards.</p>
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Vision Building Block 3

**Vision Building Block 3
Research**

We will be internationally recognized for excellence in research - fostering discovery, serving societal needs, and stimulating technology transfer.

Goal 1: We will establish signature research programs of national and international distinction.

Objectives	Action Steps	Assessment Metric(s)
<p>1.1 We will identify signature research areas.</p>	<p>1.1.1 Perform a Strength, Weakness, Opportunity, Threat (SWOT) analysis to identify which areas to develop and market.</p> <p>1.1.2 Perform a gap analysis to understand faculty, facilities, equipment, buildings and other resources required to obtain signature status.</p>	<p>1.1.1 Completed and reviewed one SWOT analysis each year.</p> <p>1.1.2 Completed and reviewed one gap analysis per year.</p>

	<p>1.1.3 Solicit input from the CEM academy, strategic industry partners, advisory committees and other alumni.</p> <p>1.1.4 Review developmental areas with CEM faculty and UND administration to obtain full support for the identified programs.</p>	<p>1.1.3 Input obtained through annual forums on directions for signature programs.</p> <p>1.1.4 New developmental areas have been reviewed by CEM faculty and UND administration.</p>
<p>1.2 We will develop signature research areas.</p>	<p>1.2.1 Formulate teams across CEM, UND, strategic industries and NDUS to develop ideas that have the potential to provide solutions to signature area challenges.</p> <p>1.2.2 Identify globally renowned experts who are interested in developing collaborations and partnerships.</p> <p>1.2.3 Establish contacts and build support from alumni, federal and state agencies and industrial clients to transform ideas into funded research projects and programs.</p> <p>1.2.4 Hire staff to help locate opportunities, build/find partners and provide support for proposal development/writing.</p>	<p>1.2.1 Working groups associated with specific signature areas have met semi-annually to identify needs and presented a report to UND administration.</p> <p>1.2.2 A database that includes collaborations with experts in each working group is accessible to all CEM faculty.</p> <p>1.2.3 At least four proposals from each working group that have the potential to be funded are generated each year.</p> <p>1.2.4 At least two support personnel are available to assist CEM faculty members in proposal development.</p>
<p>1.3 We will market signature research areas.</p>	<p>1.3.1 Respond to solicitations and develop prospectus covering research and education opportunities in our signature areas.</p> <p>1.3.2 Develop a network of researchers to increase the awareness of the common interests and capabilities of researchers on campus to facilitate more and larger</p>	<p>1.3.1 Develop at least four proposals or prospectus from each signature area each year.</p> <p>1.3.2a A database of interests and capabilities is available on CEM website.</p> <p>1.3.2b Twenty-five percent of proposals are</p>

	<p>collaborative proposals.</p> <p>1.3.3 Promote the capabilities of UND researchers and facilitate strategic alliances with other universities, industry, and national laboratories to enhance UND's ability to participate in major nation-wide research activities.</p> <p>1.3.4 Incorporate components from established signature areas into the educational aspects of CEM.</p>	<p>collaborative in nature.</p> <p>1.3.3a Marketing materials for signature areas are updated and distributed.</p> <p>1.3.3b CEM partnered in one center proposal per year.</p> <p>1.3.4 Elective courses are offered in each signature area.</p>
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Goal 2: Our research and expertise will have a positive impact on the state of North Dakota, the nation, and the world.

Objectives	Action Steps	Assessment Metric(s)
2.1 We will identify and promote CEM research areas consistent with the UND VPR strategic plan, the needs of North Dakota and the region, and the 14 grand challenges of the National Academy of Engineering.	<p>2.1.1 Evaluate the needs of stakeholders through regular workshops.</p> <p>2.1.2 Target research areas to include the 14 grand challenges.</p> <p>2.1.3 Address issues of national and international importance.</p>	<p>2.1.1 One workshop held each year in specific working groups associated with signature areas (coordinate with 1.2.1).</p> <p>2.1.2 Fifty percent of proposals targeted to key grand challenges.</p> <p>2.1.3 Fifty percent of proposals targeted national and international issues.</p>
2.2 We will promote technology transfer and economic development	<p>2.2.1 Connect with industry to better understand their needs.</p> <p>2.2.2 Maintain a project base that is relevant to North Dakota and</p>	<p>2.2.1a Coordinate with Assessment Metric for 2.1.1.</p> <p>2.1.1.b Quarterly meetings held with Grand Forks EDC.</p> <p>2.1.1c Annual meetings held with the ND Department of Commerce</p> <p>2.2.2 Fifty percent of projects are relevant to</p>

	<p>regional economic development.</p> <p>2.2.3 Facilitate protection of intellectual property through the application for patents, trademarks copyrights, documentation of the history of idea development and other practices.</p> <p>2.2.4 Understand UND's IP policies so faculty can correctly convey the policy to industry to provide appropriate recognition and protection of their intellectual property (coordinate with VBB2 Action Step 2.2.3).</p>	<p>North Dakota and regional economic development.</p> <p>2.2.3 Annual training session provided by IP Office to update faculty on policy changes and encourage continuous dialog</p> <p>2.2.4 (see Assessment Metric VBB2 2.2.3).</p>
<p>2.3: We will maintain research and design programs that encourage work force development</p>	<p>2.3.1 Provide students with the scholarly tools and/or research experience needed to compete for high technology jobs.</p> <p>2.3.2 Utilize research and design activities as tools to improve the marketability our students.</p>	<p>2.3.1a Eighty percent satisfaction from CEM graduates as measured by ABET criterion k.</p> <p>2.3.1b 80% graduate students find jobs in chosen industry or are accepted into PhD program</p> <p>2.3.2a Eighty percent satisfaction from CEM graduates as measured by ABET criterion c and l and employers in employer surveys.</p> <p>2.3.3b [measure for graduate students]</p>

Goal 3: We will collaborate with other academic disciplines, universities, research centers, and industry.

Objectives	Action Steps	Assessment Metric(s)
<p>3.1 We will promote joint research to improve the completeness, excellence, and recognition of UND research endeavors</p>	<p>3.1.1 Recognize effective collaborative work during tenure and promotion</p>	<p>3.1.1 All departments will recognize effective collaborative work in tenure and promotion guidelines.</p>

	<p>3.1.2 Encourage and support travel to facilitate formation of new partnerships, including visits to national funding agencies, national labs, universities and industries as potential partners, and other potential funding agencies.</p> <p>3.1.3 Develop appropriate method of presenting statistics to allow all participants to take credit for their contributions.</p> <p>3.1.4 Direct seed funding toward faculty teams in addition to individual researchers.</p> <p>3.1.5 Develop events such as seminar series to promote exchange of ideas between researchers.</p> <p>3.1.6 Fully integrate the IES and EERC into CEM’s research network</p>	<p>3.1.2 CEM has a policy in place to support faculty and staff travel.</p> <p>3.1.3 A database is established and results presented annually.</p> <p>3.1.4 At least fifty percent of seed funding available to CEM will be awarded to faculty teams.</p> <p>3.1.5 Annual event has been established.</p> <p>3.1.6 Inclusion of IES and EERC in 25% of CEM’s research programs</p>
<p>3.2 We will establish a wide resource-base of knowledge through collaborations (coordinate with VBB3 Objective 1.2).</p>	<p>3.2.1 Encourage/promote travel to establish interactions.</p> <p>3.2.2 Utilize the Dean, VP Research Office, and other UND officials to help establish first contact (open the door) with industry, alumni, and government officials.</p> <p>3.2.3 Utilize the CEM Academy, Industrial Advisory Boards, and other alumni as resources to formulate new collaborations.</p>	<p>Coordinate with 3.1.2.</p> <p>3.2.2 Four meaningful interactions per year.</p> <p>3.2.3 Four meaningful interactions per year.</p>

Goal 4: We will foster an environment of discovery and creativity through resource allocation, mentoring, and recognition.

Objectives	Action Steps	Assessment Metric(s)
<p>4.1 We will develop resources required for successful individual and collaborative research programs.</p>	<p>4.1.1 Develop faculty workload model that adequately allocates time to allow faculty to balance research, teaching and service.</p>	<p>4.1.1 A faculty workload model is in place in CEM.</p>

	<p>4.1.2 Mentor new faculty with an expectation of conducting research.</p> <p>4.1.3 Develop a resource base to equip faculty with modern laboratory space, sources of capital equipment, graduate/post doc offices, administrative support and other resources to help them achieve success.</p> <p>4.1.4 Work towards establishing Endowed Faculty/Chair positions. Coordinate with VBB4 – Action Step 2.1.4.</p> <p>4.1.5 Hire staff to help locate opportunities, build/find partners and provide support for proposal development/writing.</p>	<p>4.1.2 Quarterly meetings held presenting material to facilitate grantsmanship.</p> <p>4.1.3a A model is in place that leverages F&A returns in a manner to facilitate growth.</p> <p>4.1.3b Two proposals per year have been submitted that develop and build CEM resources.</p> <p>4.1.4 Two additional fully funded endowed chairs are available in CEM by 2015.</p> <p>4.1.5 Coordinate with VBB3 1.2.4.</p>
<p>4.2 We will promote mentoring of faculty at all levels to increase the research productivity of the College</p>	<p>4.2.1 Mentor junior faculty so they understand how to balance their time to include time to write research grants.</p> <p>4.2.2 Establish an expectation that faculty will develop sustainable research programs.</p> <p>4.2.3 Establish a CEM proposal working groups and other tools to promote the writing of grant applications (coordinate with 1.2.4 and 4.1.2).</p> <p>4.2.4 Establish a regular writing group to provide authors support and feedback on papers in preparation.</p>	<p>4.2.1 Five grants submitted per year for tenure-track faculty.</p> <p>4.2.2 Faculty members are meeting guidelines in promotion and tenure guidelines and faculty work plan.</p> <p>4.2.3a Quarterly meeting coordinated with 4.1.2.</p> <p>4.2.3b Spreadsheets, boiler plate, and other tools are available to all faculty members to assist in proposal writing.</p> <p>4.2.4 Quarterly writing meetings held.</p>

4.3 We will recognize success.	4.3.1 Develop on-going recognition system for research and research mentoring.	4.3.1 Guidelines for relevant research awards are fully implemented and reviewed annually for possible revisions.
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Goal 5: We will create opportunities for undergraduate and graduate students in research.

Objectives	Action Steps	Assessment Metric(s)
5.1 We will encourage involvement of undergraduate students into research.	<p>5.1.1 Fully utilize programs such as AURA, REU, Honors Program, Special Topics Courses, etc. See also VBB1 1.2.3.</p> <p>5.1.2 Integrate research topics and summer employment opportunities in research into classroom lectures to inform and excite students about research. See also VBB1 1.2.3.</p> <p>5.1.3 Invite promising undergraduate students to conduct research in faculty laboratories to expose the student to the possibilities of careers in research. See also VBB1 1.2.3.</p> <p>5.1.4 Encourage good undergraduate students to enroll in the combined BS-MS program.</p> <p>5.1.5 Develop tenure and promotion guidelines that encourage the use of undergraduate students in their research.</p>	<p>5.1.1/ 5.1.2 / 5.1.3 Fifteen percent of undergraduate students are involved in research.</p> <p>5.1.3 Each department allows students to obtain credit for performing research.</p> <p>5.1.4 Ten percent of eligible seniors are enrolled in the combined program.</p> <p>5.1.5 All departments address undergraduate research in their tenure and promotion guidelines.</p>
5.2 We will strengthen CEM's graduate programs.	<p>5.2.1 Increase number of staff and faculty through a combination of administrative actions and aggressive and successful grant writing.</p> <p>5.2.2 Promote, develop and coordinate a broad range of course offerings through co-listing of courses, combined offering, and new course development.</p>	<p>5.2.1 Ten percent growth in faculty and 20% growth in staff by 2015.</p> <p>5.2.2 Twenty-five percent increase in the course listing of graduate courses per program by 2015.</p>

	<p>5.2.3 Evaluate the readiness for discipline-specific PhD programs and establish appropriate implementation strategies and timelines.</p> <p>5.2.4 Develop tenure and promotion guidelines that encourage the use of PhD students in their research.</p> <p>5.2.5 Expand the support for graduate students through an increase in the number of grant submissions by faculty, endowments, corporate fellowships, tuition waivers and other means.</p>	<p>5.2.3 Annual review performed and plan developed for implementing new programs.</p> <p>5.2.4 All programs address the use of PhD students in their tenure and promotion guidelines.</p> <p>5.2.5 CEM has an average of four graduate students with some form of assistantship per graduate faculty member.</p>
<p>5.3 We will enhance our visibility and reputation to attract high quality students to CEM's programs.</p>	<p>5.3.1 Develop an endowment and other funding to support student travel to conferences.</p> <p>5.3.2 Develop promotion and tenure guidelines to encourage proposal writing and publication with students.</p> <p>5.3.3 Develop guidelines, training, and sharing of success on methods to recruit and retain high quality graduate students.</p> <p>5.3.4 Establish pipelines with high quality international universities to allow selective recruiting to ensure a continual supply of highly qualified students.</p> <p>5.3.5 Establish a strong web presence that promotes the research accomplishments and other strengths of our programs.</p>	<p>5.3.1 Twenty thousand dollars are available annually to support student travel.</p> <p>5.3.2 Publication and proposal submission/success targets are included in all departmental tenure and promotion guidelines.</p> <p>5.3.3 Recruiting guidelines and training program established by 2013.</p> <p>5.3.4 Five formal memo of understandings (MOUs) are established with national/international universities by 2015.</p> <p>5.3.5 CEM web site updated monthly with new research accomplishments.</p>

**Vision Building Block 4
Work Environment**

We will foster an inspiring, supportive, high-performance, team-based work environment.

Goal 1: We will provide resources to support the advancement of our faculty and staff

Objectives	Action Steps	Assessment Metric(s)
<p>1.1 Faculty and staff will participate in professional development and goal setting.</p>	<p>1.1.1 Establish a system for communicating professional development opportunities between department heads and faculty and staff.</p> <p>1.1.2 Ensure that academic and administrative heads and directors have the training, mentoring, time and support they require to be effective leaders.</p> <p>1.1.3 Require participation in university orientation and customer-service programs by all new employees.</p> <p>1.1.4 Conduct meaningful annual reviews of all faculty and staff and assessment of employee goals – both individual and those established by the department head for the employee.</p> <p>1.1.5 Review CEM’s mission with faculty and staff to develop an understanding and support of the mission and to provide clear expectations on implementation of this strategic plan.</p>	<p>1.1.1 Database in place that announces free on campus, web-based, and external professional development opportunities and well as resources available for faculty and staff.</p> <p>1.1.2 Those with administrative responsibilities will participate in two management/leadership events per year.</p> <p>1.1.2b Complaints related to administration are addressed promptly and used as a basis for positive organizational change.</p> <p>1.1.3 All new employees participated in appropriate training.</p> <p>1.1.4 Performance and goals reviewed annually for all CEM employees.</p> <p>1.1.5a CEM strategic plan reviewed at departmental meetings in all departments at least once per year.</p> <p>1.1.5b All Departments have a strategic plan consistent</p>

		with CEM strategic plan.
1.2 We will cultivate an inspiring professional atmosphere that encourages initiatives for a healthy work environment.	<p>1.2.1 Provide safe, comfortable areas for faculty and staff to gather.</p> <p>1.2.2 Support healthy workplace initiatives including those offered through the Wellness Center.</p> <p>1.2.3 Allow faculty and staff to personalize their offices.</p> <p>1.2.4 Establish a system for backing up staff positions to accommodate vacation or emergency family needs.</p>	<p>1.2.1a Usage of available gathering areas will be reviewed annually.</p> <p>1.2.1b Suggestions from faculty and staff on changes in gathering areas solicited at least annually.</p> <p>1.2.2 Review individual wellness plan with faculty and staff annually.</p> <p>1.2.3 Allow office upgrades that meet the requirements of the safety office, facilities, and the mission of the unit.</p> <p>1.2.4 All positions have at least one backup person, either dedicated or through an "on-call" system.</p>
1.3 Faculty and staff will have physical resources that effectively meet individuals' assignments and responsibilities.	1.3.1 Develop a master plan for facilities and equipment based on a needs assessment.	<p>1.3.1a CEM-wide needs assessment completed.</p> <p>1.3.1b Facilities and Equipment Master Plan developed and implemented.</p>

Goal 2: We will enable and reward creative solutions, productivity, and a professional work atmosphere.

Objectives	Action Steps	Assessment Metric(s)
2.1 We will recruit and support excellent and diverse faculty, academic professionals, and staff which best support our educational and research activities.	<p>2.1.1 Encourage competitive salaries at all levels.</p> <p>2.1.2 Have an effective performance-evaluation system for all employees consistent with university priorities.</p> <p>2.1.3 Evaluate merit review and reward policies to ensure they</p>	<p>2.1.1a All salaries at least within 10% of national average based upon Oklahoma survey.</p> <p>2.1.2 A plan will be in place for all employees and utilized annually.</p> <p>2.1.3 Performance evaluation criteria within</p>

	<p>are fair and consistent.</p> <p>2.1.4 Develop and implement a plan to increase tenure-track faculty positions and staff positions to be consistent with the educational and research goals for the Colleg.</p> <p>2.1.5 Review job descriptions for accuracy and encourage employees to be part of this review.</p> <p>2.1.6 Research, utilize, and, as necessary, create support systems to enhance performance excellence, a diverse workforce and a spirit of inclusion.</p>	<p>each unit reviewed by 2011 and every five years thereafter.</p> <p>2.1.4 Plan developed and initiated by 2011. Coordinate with VBB3 Action Step 4.1.4.</p> <p>2.1.5 All job descriptions reviewed annually and updated as needed during performance reviews.</p> <p>2.1.6a All new faculty members will apply for the Alice Clark program.</p> <p>2.1.6b Measures of targeted diversity show a 10% increase by 2015.</p> <p>2.1.6c Coordinate with VBB4 1.1.1.</p>
<p>2.2 We will provide excellence in service to internal and external constituencies.</p>	<p>2.2.1 Encourage faculty, staff, alumni and students to suggest ideas for improvements within CEM.</p> <p>2.2.2 Recognize and reward units and individual staff that offer excellent customer service.</p> <p>2.2.3 Reinforce expectations for</p>	<p>2.2.1a One open feedback forum for faculty and staff and one feedback forum for students held each year and promoted across SEM.</p> <p>2.2.1b One additional feedback mechanism established and promoted (suggestion box, virtual forum, etc.).</p> <p>2.2.1c Summary of feedback and resulting actions, if any, published annually.</p> <p>2.2.2 CEM nominates individuals or groups in 75% of campus-wide service awards annually.</p> <p>2.2.3 CEM orientation and</p>

	professionalism and service excellence expectations for faculty and staff.	policy manual developed by 2012 and reviewed every three years.
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Goal 3: We will foster and encourage team building, collaborative work attitudes and practices, and the cooperative integration of research and education.

Objectives	Action Steps	Assessment Metric(s)
3.1 We will formulate a coordinated and effective process for implementing policies and procedures in a changing environment.	<p>3.1.1 Include faculty and staff in development and implementation of operating policies and procedures that impact their employment responsibilities.</p> <p>3.1.2 Alert students, faculty, and staff to changes in university/CEM policy and procedures in a timely manner.</p> <p>3.1.3 Ensure policies and procedures consistent with the mission of CEM.</p>	<p>3.1.1a Input sought from all impacted faculty and staff for any policy changes.</p> <p>3.1.1b Relevant training on CEM policies and procedures provided to all employees.</p> <p>3.1.2a Changes in policies and procedures disseminated by Leadership Team in appropriate venues within one week.</p> <p>3.1.3a Coordinate with 2.2.4.</p>
3.2 We will create systems utilizing faculty and staff that provide for a spirit of joint enterprise in areas of potential growth.	<p>3.2.1 Designate a working group to identify and remove barriers for faculty and staff related to providing high-quality distance education.</p> <p>3.2.2 Provide opportunities and training in UND and CEM governance including planning, assessment and communication needs.</p> <p>3.2.3 Evaluate and develop balanced and sustainable work expectations for faculty and staff, which are consistent with the needs of CEM but allowing them to flourish individually and collectively in a diverse environment.</p>	<p>3.2.1 Eighty percent of faculty and staff identify no significant barriers related to providing high-quality distance education.</p> <p>3.2.2 Twenty-five percent of faculty/staff actively participating in UND or CEM governance with 10% changeover on annual basis to new members.</p> <p>3.2.3 Faculty and staff work plans and T&P guidelines reflect balance and sustainability developed by 2012 and reviewed every three years.</p>

<p>3.4 We will expand the number of collaborative/cooperative research, education, and outreach activities that support the CEM strategic plan.</p>	<p>3.4.1 Recognize and reward successful collaborative teaching, research, and outreach efforts that support the CEM strategic plan.</p> <p>3.4.2 Support efforts to team-teach courses.</p>	<p>3.4.1 Collaborative work recognized in T&P and merit raise guidelines in addition to individual activities.</p> <p>3.4.2 Two team-taught courses by 2011, four by 2013.</p>
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**Vision Building Block 5
Community**

We will engage the community to promote engineering and innovation, inspire young minds, help the regional economy thrive, and display civic responsibility.

Goal 1: We will offer creative outreach programs to inform and excite young people about engineering career opportunities and how engineers shape our future.

Objectives	Action Steps	Assessment Metric(s)
<p>1.1 We will provide educationally proven STEM outreach activities for potential students and their parents, those involved with career counseling for potential students, and the general public.</p>	<p>1.1.1 Support outreach programs that specifically target K-12 and varying interest areas and which showcase CEM’s unique capabilities.</p> <p>1.1.2 Support faculty, staff and students in outreach activities.</p> <p>1.1.3 Seek reliable external funding to support personnel, supplies, and travel expenses involved with outreach activities.</p> <p>1.1.4 Present awards for faculty, staff and student contributions to outreach activities.</p> <p>1.1.5 Recognize excellence in outreach in evaluating faculty for tenure and promotion.</p>	<p>1.1.1a CEM participated in or host/co-hosted five venues each year.</p> <p>1.1.1b Five articles or publications showcased CEM activities.</p> <p>1.1.2 Twenty-five percent of faculty, staff and student contributed to outreach volunteer activities.</p> <p>1.1.3 At least twenty thousand dollars per year internal/external funding secured for outreach support.</p> <p>1.1.4 A system is in place to facilitate recognition of faculty, staff, students or student organizations for outreach activities.</p> <p>1.1.5 Outreach activities addressed in promotion and tenure guidelines and assessed in P&T process as worthy contributions.</p>

<p>1.2 We will integrate educational outreach into the engineering degree experience.</p>	<p>1.2.1 Investigate and incorporate multi-disciplinary service learning projects for adoption into our programs.</p> <p>1.2.2 Develop and implement educational outreach activities for which engineering students can receive appropriate recognition including experiential credit similar to cooperative education or internships.</p>	<p>1.2.1 At least one multi-disciplinary service learning project is implemented each year.</p> <p>1.2.2 Five percent of CEM students earn credit through participation in sanctioned outreach activities.</p>
<p>1.3 We will actively participate in the training of STEM educators.</p>	<p>1.3.1 Collaborate with faculty outside of CEM to develop partnerships in K-12 outreach programs and multi-disciplinary service learning projects for students in both colleges.</p> <p>1.3.2 Work with Career & Technical Education educators to build science and engineering into technology education curricula.</p>	<p>1.3.1 CEM faculty members have collaborated annually on four STEM K-12 programs or proposals.</p> <p>1.3.2 CEM and Career & Technical Education educators have developed transfer credit policies for satisfactory completion of courses within STEM programs.</p>

Goal 2: We will develop relationships with stakeholders to help meet their emerging technological needs and to help advance community and economic development.

Objectives	Action Steps	Assessment Metric(s)
<p>2.1 Capstone projects will be sponsored by or relevant to stakeholders.</p>	<p>2.1.1 Create a database of stakeholders and with potential interest in CEM capstone projects.</p> <p>2.1.2 Solicit sponsors to provide ideas, serve as advisors, and provide monetary and other support for capstone design projects.</p>	<p>2.1.1 A centralized stakeholder database exists and is updated annually that includes projects supported and CEM contact reports.</p> <p>2.1.2a A formalized plan including an updated brochure and web contact is in place.</p> <p>2.1.2b Fifty percent of design projects address stakeholder needs.</p>
<p>2.2 We will foster joint projects between CEM stakeholders.</p>	<p>2.2.1 Sponsor and participate in mini-conferences/workshops at</p>	<p>2.2.1a: Two mini-conferences/workshops will</p>

	<p>UND and across the state and region that will bring together scientists and engineers from businesses, government, organizations and academia to foster collaboration.</p> <p>2.2.2 Foster collaborative proposals and obtain joint funding for projects between UND, stakeholders and research entities.</p> <p>2.2.3 Cultivate and publicize an image as being very easy to collaborate with, particularly in the area of intellectual property (coordinate with VBB3 Action Step 2.2.4).</p>	<p>be held each year. 2.2.1b CEM representatives will participate in five conferences per year.</p> <p>2.2.2a Ten collaborative multi-entity proposals submitted by CEM annually.</p> <p>2.2.2b Collaborative, multi-entity funding of \$250,000 secured annually.</p> <p>2.2.3a No valid complaints from partners regarding generation and protection of intellectual property.</p> <p>2.2.3b One patent application per year produced with partners.</p>
<p>2.3: We develop certificates and/or short training courses based on the needs of our stakeholders to be offered to employers for new employee training or employee re-training (coordinate with VBB6, Goal 2).</p>	<p>2.3.1 Collaborate with stakeholders to identify and offer appropriate continuing education opportunities for licensed engineers, those seeking licensure, and workforce training.</p>	<p>2.3.1 Four offerings per year available to support licensure and workforce training (see also Assessment Metrics VBB6 2.1.1. – 2.2.4).</p>

**Vision Building Block 6
Alumni**

We will promote the accomplishments of our alumni, engage them in College initiatives, and serve as a resource for the advancement of their success.

Goal 1: We will track and publicize the career paths and accomplishments of our alumni.

Objectives	Action Steps	Assessment Metric(s)
<p>1.1 We will increase our ability to continuously track alumni accomplishments and career paths.</p>	<p>1.1.1 Expand CEM’s utilization of UND Alumni Association / Foundation’s resources to build accurate database of all alumni..</p> <p>1.1.2 Ensure that all important interactions with alumni, friends, and corporations are documented and reported to the appropriate personnel within the College and the UND Foundation.</p> <p>1.1.3 Utilize web technology and social media to make it easy for alumni and their employers to provide us with updates on recent career accomplishments.</p> <p>1.1.4 Work with pertinent UND units to provide all alumni with a life-long e-mail address.</p>	<p>1.1.1 The database has accurate information about all our alumni by December 2012 and updated annually.</p> <p>1.1.2 The number of documented interactions increases by 10% annually.</p> <p>1.1.3 The number of alumni and employers utilizing this tool increases by 10% annually.</p> <p>1.1.4. All alumni have life-long email addresses by December 2012.</p>
<p>1.2 We will increase the visibility of CEM alumni.</p>	<p>1.2.1 Utilize electronic media to collect and communicate news about alumni.</p> <p>1.2.2 Utilize College –wide magazine and departmental newsletters to highlight alumni accomplishments.</p> <p>1.2.3 Present awards to esteemed alumni.</p>	<p>1.2.1 At least one update on alumni accomplishments is issued monthly using electronic media.</p> <p>1.2.2 At least one newsletter per department and one issue of the Engineering magazine will be issued annually with highlights on alumni accomplishments and with appeals to gather more information about alumni accomplishments.</p> <p>1.2.3 A system is in place to facilitate recognition of alumni.</p>

Goal 2: We will track the professional development needs of our alumni and create programs and opportunities for their lifelong advancement.

Objectives	Action Steps	Assessment Metric(s)
2.1 We will increase our ability to continuously track alumni needs.	2.1.1 Gather information on the professional development needs of our alumni.	2.1.1 A list of needs has been developed and prioritized annually.
2.2 We will create programs and provide professional development opportunities for alumni.	<p>2.2.1 Use campus and/or distance education resources to conduct Jodsaas Center Leadership Seminars.</p> <p>2.2.2 Use campus and/or distance education resources to conduct "Hot Topic" lectures on engineering innovations.</p> <p>2.2.3 Use campus and/or distance education resources to deliver short courses leading to professional society continuing education credits.</p>	<p>2.2.1 Two events per year have been held.</p> <p>2.2.2 Two events per year have been held.</p> <p>2.2.3 Ten courses will be available by 2015. Coordinate with VBB 5 2.3.1</p>

Goal 3: We will involve our alumni in the creation and execution of College initiatives.

Objectives	Action Steps	Assessment Metric(s)
3.1 We will increase the impact of alumni in the creation and execution of College initiatives.	<p>3.1.1 Invite alumni to return to campus to talk with classes and deliver professional development and Jodsaas Center Engineering Leadership Seminars.</p> <p>3.1.2 Invite alumni as members of units advisory boards and CEM's Executive Board to return to campus to strategize on College</p>	<p>3.1.1a At least twenty Four alumni per year returned to campus to interact with students.</p> <p>3.1.1b Eighty percent of students indicate content useful for their career development.</p> <p>3.1.2 At least fifty alumni are actively involved in College and departmental advisory</p>

	<p>and departments initiatives.</p> <p>3.1.3 Host off campus events for alumni in locations close to majority of alumni.</p>	<p>boards and CEM's Executive Board.</p> <p>3.1.3 Four meetings held each year with 100 alumni participating.</p>
<p>3.2 We will articulate ways alumni can contribute to the development and the sustainment of College initiatives.</p>	<p>3.2.1 Utilize electronic media to communicate College initiatives and solicit feedback on initiatives and other business.</p> <p>3.2.2 Conduct alumni events on campus and in major cities.</p> <p>3.2.3 Conduct face-to-face meetings between potential alumni and the Dean, Director of Development, and/or other key university players.</p>	<p>3.2.1 Two correspondences sharing information and soliciting feedback annually.</p> <p>3.2.2 Six events held per year.</p> <p>3.2.3 A total of 100 face-to-face meetings held annually.</p>

Major Initiatives

Initiative # 1 – College of Engineering and Mines Student Success Center (CEM Hub)

The CEM Hub aspires to be the focal point of student activities across the College – a meeting place for academic study groups and tutoring, a coordinating area for student professional organizations, an advising resource for undecided engineering students, a first stop for all questions related to CEM policies and procedures, a collaboration space for team projects, a career connection for linking current students with alumni and resources from the UND Career Services Office, and the center of student support services across the College.

Specifically, the following services/activities are envisioned as components of the Hub:

- Academic advising for engineering undetermined students
- Engineering career advising, interview skills and networking in collaboration with UND Career Services
- Coordination of K-12 outreach and recruiting events across CEM
- Coordination and oversight of Engineering Living Learning Community
- Coordination of student professional organization activities via the Engineering Council
- Coordination and oversight of CEM peer mentors and student ambassadors
- Coordination and oversight of the ENGR 100 course
- Coordination of student services with regards to CEM major declaration, graduation, Order of the Engineer, FE exam, room scheduling, etc.

Initiative # 2 -- Engineering Leadership and Entrepreneurship Programs

- Customized leadership development programs
- Business skills and Entrepreneurial spirit programs
- Students coaching from industry and business community

Initiative # 3 -- Institute for Energy Studies

- Coordination of energy education, outreach, research, and commercialization activities at UND.
- Educational programs to produce graduates who are cognizant of the technical, social, political, environmental, and economic aspects of energy..
- Interdisciplinary research aimed at accelerating the implementation of efficient and environmentally sustainable energy production technologies
- Partnerships with NDUS campuses, and federal, state, local, and industrial partners.

Initiative # 4 -- Expand Biomedical Engineering Programs

- prepare students for current and future challenging problems in healthcare
- create novel technologies to improve human health
- provide clinicians with new diagnostic and treatment tools
- conduct state of the art research through academic and industrial collaborations
- seek and support interdisciplinary research activities
- establish a joint MS/PhD graduate program in biomedical engineering with NDSU
- create a BS minor in Electrical Engineering

*Initiative # 5 -- **Alumni Advancement and Support Unit***

- Commitment to help alums stay current and advance their careers
- Tracking of alumni needs in contemporary technology
- Providing cutting edge educational resources to alums via variety of delivery methods

*Initiative # 6 – **Collaborative Energy Complex***

- Combination of multiple Initiatives – People, Programs, Facilities
- Home of: Institute for Energy Studies, Department of Petroleum Engineering, Student Success Center (CEM Hub), Alumni Advancement and Support Unit
- A new building that will connect Leonard Hall with rest of Engineering
- Space for teaching, research and innovation
- Environmentally conscious design

Revisions

3-5 Year Goals

August 15, 2014

Student Success (Strategic Plan – VBB-1, VBB-2, VBB-6)

- Increase first-year freshman fall-to-fall retention rate at least 3% per year for the next five years (target – 75% retention to CEM).
- Increase six-year graduation rate 2% per year for the next five years (target – 75% (Data on students who started 2006 showed 6-year rate of 64%, previous years were about mid-50's).
- Increase undergraduate (particularly FR/SO) participation in meaningful research/field experiences by 50% within 5 years.
- Develop and implement enrollment management plan to ensure high quality learning.

Graduate Programs (Strategic Plan – VBB-1, VBB-2)

- Expand graduate programs to include new and strategically important areas.
- Double graduate students enrollment. As part of this goal we will expand our graduate degree programs in the following new areas:
 - o Discipline-specific Ph.D. Programs
 - o On-line Master's degrees and Certificate Programs
- Provide financial support for at least 60 graduate students per year.

Jodsaas Center (Strategic Plan – VBB-1, VBB-2, VBB-5, VBB-6)

- Through its activities the Jodsaas Center will generate sufficient funds to
 - o employ a full-time director and at least one staff member
 - o provide seed funding for student and faculty entrepreneurs
 - o bring outside speakers to campus for seminars and workshops
- The Jodsaas Center will establish a student business plan competition, with the winning team to possibly be awarded startup funds, office space, etc.

ABET Accreditation (Strategic Plan – VBB-1, VBB-2)

- Successfully pass the accreditation review of Fall 2015 and receive accreditation in all programs by Summer 2016.
- Automate ABET assessment processes starting 2016.

Distance Education (Strategic Plan – VBB-1, VBB-2)

- Expand on-line programs to include Minors, Certificates, and Master's degrees.
- Involve more active learning/flipped classroom approaches in the pedagogy.
- Monitor and appropriately increase staff and faculty to meet program growth.
- Revise existing policies to ensure student success. Existing policies include:
 - o Admissions
 - o Reinstatement
 - o Proctoring (conventional and technological proctoring)
 - o Transfer
 - o Advising

Research (Strategic Plan – VBB-3)

- Expand annual research expenditures to a level of \$10 million within 5 years
- Develop 3 major center-like programs that provide national recognition and continuous funding (target of \$500K/year for such programs)
- Fully integrate the IES and EERC into CEM's research network (goal of 25% inclusion in CEM research programs)

Physical Environment (Strategic Plan – VBB-1, VBB-2, VBB-3, VBB-4)

- Complete the construction of the Collaborative Energy Complex
- Complete the renovation of all labs in Harrington Hall, Upson I, Upson II, and Leonard Hall and classrooms as outlined in the renovation plan of Fall 2014.
- Construct a study room for students near the entrance of Upson II as outlined in the renovation plan of Fall 2014.

Community/Industry/Outreach (Strategic Plan – VBB-2, VBB-5)

- Expand K-12 programs and establish a stable funding base to support outreach activities.
- Increase the number of service learning projects
- Expand CEM's participation in STEM initiatives through collaborate with HED & A&S.
- Increase the number of community/industry sponsored capstone projects.

Alumni (Strategic Plan – VBB-6)

- Track the placement of recent graduates
- Provide professional development opportunities for alumni
- Increase the number of alumni who are engaged in CEM's activities:
 - o Expand the pool of alumni who are invited to campus to lecture to classes and present seminars
 - o Visit alumni at their place of business to understand their needs, solicit feedback on direction of college, and discuss potential collaborations.