Strategic Plan 2009-2014
Biosystems and Agricultural Engineering
University of Kentucky

Approved April 28, 2010, Revised July 14, 2010

Mission: Serve and benefit the people of Kentucky and beyond through learning, discovery, and engagement in engineering for food, energy, agricultural, biological, and environmental systems.

Vision: Be recognized and valued as:

A critical information source to clientele because we:
- are the primary source of engineering expertise for solving contemporary problems of vital social and economic importance to the state and beyond;
- are responsive to clientele needs;
- are catalysts for positive, innovative technological change; and
- strive to enhance the quality of life for our citizens.

A leader because we:
- develop and disseminate relevant engineering knowledge;
- utilize multidisciplinary and multi-institutional team approaches to problem-solving; and
- design and implement cutting-edge undergraduate and graduate instructional programs.

A role model for all similar programs because we:
- achieve excellence and balance in our instructional, research, and extension programs; and
- value faculty, staff and students who work cooperatively to foster excellence.
Goal 1: Prepare Students for Leadership in an Innovation-Driven Economy and Global Society

Biosystems and Agricultural Engineering has a longstanding tradition of producing engineers that are preferred by industry, private consulting firms and government agencies as well as developing the next generation of researchers, educators and extension professionals. The Department expects its graduates to become leaders in their professions and their communities. To this end, the Department must attract and graduate outstanding students with diverse backgrounds and engineering skills to meet the challenges of the future.

Most Significant Challenges

- We have the potential to grow the size of our undergraduate program by fully populating existing course offerings. Our challenge is to recruit qualified entry–level students while competing with the more traditional engineering disciplines.
- Our graduate program is stable with a five year average enrollment of 28.4 students (8.4 Ph.D. and 19.8 M.S.) and has demonstrated potential for expansion. The challenge is to compete on a national level for the very best students with below-market assistantships and rapidly increasing tuition and medical costs.
- Improve program and profession identity with young people, career counselors and potential employers of our graduates.

Strategies

- Redesign student recruitment processes to attract high quality undergraduate and graduate students.
- Redevelop the departmental web portals to be more student-oriented and to accurately reflect career and post-graduate opportunities.
- Expand cooperative education, internship, and international opportunities for all students.
- Encourage faculty to include competitive graduate assistantships levels and tuition in all grant proposals that permit these costs.
- Review and update the graduate curriculum.
- Maintain ABET accreditation (Next General Visit) of our undergraduate program.
- Redouble our efforts to seek outside funding for graduate fellowships.

Key Indicators

1. Increase the size of the BAE undergraduate student program from the most recent five year average of 68.2 by 5% per year until reaching the desired program goal of 145 enrolled students.
2. Increase six year graduation rates to 70% of those students who enroll in the BAE undergraduate program.
3. Increase the number undergraduate students taking the Fundamentals of Engineering exam to 90% of the graduating class.
4. Increase by 5% per year to a target of 50% of graduating BS students who take advantage of international educational experiences.
5. Increase or maintain graduation rates of three Ph.D., six M.S. - Plan A and two M.S. - Plan B students per year (from current rates of 1.8 Ph.D., 6.2 M.S. - Plan A and 0.2 M.S. - Plan B based on the most recent five-year average).
6. Publish 0.5 peer reviewed articles and make 1.0 scientific presentation per supported-graduate-student-year.
7. Maintain a balance of international graduate students enrolled in our program.
8. Increase the number of foreign national students we host for “sandwich” programs and internships.

Goal 2: Promote Research and Creative Work to Increase the Intellectual, Social and Economic Capital of Kentucky and the World Beyond its Borders

Biosystems and Agricultural Engineering’s land-grant mission encourages truly creative research endeavors that result in the discovery of new knowledge. Further, we aspire to capitalize on the individual and collective achievement of our faculty by applying discoveries to the improvement of agriculture, industry, families, communities, and the natural environment. The Department integrates discovery science and applied research and technology in teaching, technology transfer, and outreach activities to solve problems and generate economic, societal, and environmental benefits at state, national and international levels.

Most Significant Challenge
- Budget cuts have created expertise shortages in key areas.

Strategies
- Provide creative incentives for faculty performance tied to level of scholarly productivity as indicated in the “Statement of Evidences.”
- Aggressively pursue new sources of extramural research funding from commodity-oriented, industrial, standards organizations and competitive state and federal funding agencies.
- Create a community where retention of soft-funded professionals is a common goal supported by all.
- Increase and amplify faculty productivity through hiring soft-funded research professors, post-doctoral scholars, scientists, and engineers.
- Focus and encourage research directed toward high impact areas and applications.

Key Indicators
1. Increase total Wethington Award values from the most recent departmental total of $80,453 (FY 10) by 5% per year.
2. Maintain the annual external awards at over $250K per research faculty FTE and/or $150K per faculty FTE.
3. Increase five-year average of peer reviewed publications from 3.41 to 3.75 per research FTE.
4. Increase five-year average number of patent disclosures submitted to the Intellectual Property Committee to three per year.
5. Increase faculty appointments to state and national boards.

Goal 3: Develop the Human and Physical Resources of the Department to Achieve Top 20 Stature

As part of land-grant institution, Biosystems and Agricultural Engineering offers access to knowledge and learning for citizens and students throughout the Commonwealth. Agricultural, biological, food, renewable energy and environmental systems are key components of Kentucky’s economic future, and Biosystems and Agricultural Engineering is playing a prominent role in those areas with its research, teaching, and outreach programs. Our department seeks to be recognized as one of the top departments of its kind in the nation.

Most Significant Challenges
- Many national metrics are size-dependent and since we are a mid- to small-size department, the national rankings may be of limited value.
- Recruitment, retention or development of talented faculty remains limited by budget cuts.
- Retention and compensation of highly skilled staff remains problematic.
- Replacement of up to six faculty members who are expected to retire by 2015.

Strategies
- Aggressively pursue extramural funding locally, regionally and nationally from commodity-oriented, corporate, state and federal sources.
- Aggressively recruit outstanding new faculty members in high opportunity areas.
- Promote the accomplishments and recognition of the members of the Department locally, regionally, nationally and internationally.
- Continue to encourage faculty, staff and graduate student creativity.
- Emphasize the involvement in high-impact, high-visibility projects and programs.
- Encourage strategic planning of research focus toward high impact or high-risk-high-impact areas.

Key Indicators
1. Increase the number of full-time faculty numbers from 18 in 2009 to 21 in 2014.
2. Maintain a five-year average of two or more post-doctoral scholars and two or more research professors supported per year.
3. Position the faculty to receive university, regional, national or international achievement honors at the rate of two per year.
4. Maintain Professional Engineering registration of faculty members at 80% or above.

Goal 4: Promote Diversity and Inclusion

The Department is committed to creating an environment where diversity is valued and all individuals can fulfill their highest potential. Respect for diversity of thought, culture, and all human differences are a cornerstone of the land-grant philosophy. To fulfill its mission, the Department must model the ways in which diversity, fairness, and equity in policies and practices facilitate learning, discovery and engagement. We seek to sustain an institutional climate wherein differences are valued, we create work and learning environments wherein every person has opportunities to achieve their highest potential, and we support an inclusive institution responsive to the needs of all students, staff, faculty and citizens.

Most Significant Challenges
- Enrollment of women students in our educational programs is well above that of contemporary programs (44% women for undergraduate and 40% women for graduate programs). However, the percentage of students from under-represented groups is not reflective of society at large.
- Identifying qualified candidates from underrepresented groups to fill open tenure-track faculty lines.

Strategies
- Recruit students, faculty and staff from diverse backgrounds and cultures.
- Develop a targeted recruitment approach for all departmental searches.
- Maintain and promote an open environment in which diversity is recognized and welcomed.

Key Indicators
1. Increase the percentages of undergraduate students, graduate students, technical staff, and professional staff from under-represented groups by 5%.
2. Increase the number of candidates from under-represented groups applying for tenure-track faculty positions.
Goal 5: Improve the Quality of Life for Kentuckians through Extension, Outreach and Service

Agricultural, environmental, energy, and economic issues create an unprecedented demand for knowledge- and research-based educational programs applicable to the needs of all Kentuckians. Economic development and rapidly changing urban, rural and agricultural landscapes in Kentucky require a vital, progressive and responsive engineering extension service programs.

Most Significant Challenges

- Budget cuts combined with turnover have created critical expertise shortages in key areas.
- Cuts in state funding increase dependence on developing alternative sources of funds.
- Extension engineering resources are limited compared to traditional and commodity-focused programs.
- Unique engineering solutions often require on-site assessment thereby limiting the overall number of extension clientele the department is capable of supporting.

Strategies

- Maintain a basic level of faculty support for extension programming that is vital to advancement of traditionally served areas including: agriculture, forestry, mining, environmental agencies, utilities, and property and business owners.
- Seek new and creative approaches to joint and split faculty appointments and/or the use of non-faculty positions to meet the existing and emerging extension programming needs.
- Expand extension programming through non-traditional funding sources in areas that include such as energy and the environment.
- Utilize web-based technologies in new and different ways to reach non-traditional clientele through distance learning.
- Work with neighboring land-grant institutions to develop regional solutions for meeting common clientele needs.

Key Indicators

1. Increase the level of extension grant activity as measured by the numbers of proposals submitted and funded to 2 per extension faculty FTE per year.
2. Increase the number of extension programs submitted for awards to 1 per extension faculty FTE per year.
3. Increase the number of new and revised extension series publications to 4 per extension faculty FTE per year.
4. Maintain a critical balance of faculty appointments between extension and research to insure program support for key areas.