EP.08.50

PROPOSAL TO THE SENATE COMMITTEE ON EDUCATIONAL POLICY

TITLE OF THE PROPOSAL:

A Proposal to Change the Undergraduate Degree Program Name from Agricultural Engineering to Agricultural and Biological Engineering.

SPONSOR:

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BRIEF DESCRIPTION:

Following a trend in the agricultural engineering profession over the past decade, a process of change was instituted in the department to provide greater visibility to the biological emphasis that has been a substantial part of this profession from the beginning. As a first step, the department name was changed to Agricultural and Biological Engineering in 2003. This proposal addresses the next step in the process which is to change the degree program names for the Bachelor of Science, Master of Science, and Doctor of Philosophy degrees to be the same as the department name. In the future, changes to the current degree program will be proposed to better align with newly approved accreditation criteria which now delineate both 'Agricultural Engineering' and 'Biological Engineering'. This proposal deals specifically with the undergraduate degree program. A separate proposal deals with the graduate degree programs.

JUSTIFICATION:

Agriculture inherently relies on the biological sciences for its advancement. Therefore applying engineering to solve problems in agriculture necessarily incorporates a biological dimension. While in the past there was no formal acknowledgment of the biological emphasis, the agricultural engineering academic departments at universities around the U.S. and their professional society have recognized the need to formally reflect this emphasis by changing their names. Leaders and practitioners in this discipline have viewed the change as inevitable and necessary. Most changes have already occurred in academic departments and in our professional societies (such as the American Society of Agricultural and Biological Engineers formerly the American Society of Agricultural Engineers). At this time, in the U.S., there is no academic department that carries the simple name of "Agricultural Engineering." Almost all the new names of academic departments and degree programs contain the term "biological" or the prefix "bio."

The Department of Agricultural Engineering was formed in 1932. The Bachelor of Science degree in Agricultural Engineering in the College of Engineering was also approved in 1932; the Master of Science degree in Agricultural Engineering was approved in 1948; and the Doctor of Philosophy degree was approved in 1964. For most of its history, the agricultural engineering

discipline was best described by four distinct sub areas: Power and Machinery; Electrical Power and Processing; Soil and Water; and Structures and Environment. Recent emphases include Biology, Environment, Information, Food, Resources, and Systems. While these new emphases will continue, visionary leaders in the discipline have started addressing the needs of flexibility, globalization, life-long learning, and leadership development.

Curriculum

Evidence of the biological content in the existing UIUC Agricultural Engineering degree program can be found not only at the course level, but also for example in the Food and Bioprocess Engineering (F&BE) concentration, and in each of the three specializations in Agricultural Engineering: Bioenvironmental Engineering (BEE), Soil and Water Resources Engineering (SWRE), and Off-Road Equipment Engineering (OREE). The specializations require at least seven credit hours of Biological and Natural Sciences electives, including at least one approved biology course, to be taken as part of the degree program. This requirement has been in place for more than 10 years. The F&BE concentration is strongly underpinned by courses in microbiology and food science.

To build on its past success and to further enhance the ability of the "agricultural engineering" discipline to contribute to an evolving food and agricultural system, the department made a strategic decision approximately three years ago to adopt a more holistic approach to reflect its new name of "Agricultural and Biological Engineering (ABE)." A new department vision and mission were established that stress the integration of engineering and biology for solving engineering problems related to living systems. This integration includes topics such as bio-based processing and production systems, biomass and renewable energy, agricultural and biosystems management, food quality and safety, and automation of biological systems. These issues require knowledge of the biology of plants, animals, microorganisms, and humans.

With such a substantial commitment to a biological emphasis in the Agricultural Engineering degree program, a name change to agricultural and biological engineering should be a logical and justifiable progression from the department name change. This change is a first step in a longer duration evolution of the degree program. The Accreditation Board for Engineering and Technology (ABET) recently approved separate accreditation criteria for "Agricultural Engineering" and "Biological Engineering" (in addition to an existing criterion for "Bioengineering"). The proposed, and future, changes align the ABE degree program with these new accreditation criteria.

BUDGETARY AND STAFF IMPLICATIONS:

This degree is currently administered by the department and the name change will not create any direct budgetary or staff implications. The name change will likely attract more students into the degree program but the increase can be handled with existing resources.

GUIDELINES FOR UNDERGRADUATE EDUCATION:

Under the new degree program name the general goals and guidelines stated in the report published in 1972 by the Vice Chancellor for Academic Affairs entitled "An Academic Plan for the Urbana-Champaign Campus" will continue to be met. In addition, the more visible recognition of the role of biology in the degree program will raise students' awareness and create a deeper understanding of the importance of this discipline in their profession. The proposed name changes will enhance the student's undergraduate education by being able to add options related to biological systems and other biological breakthroughs related to engineering needs, thereby training them to be at the leading edge of the agricultural and biological engineering discipline.

CLEARANCES:

K.C. Ting, Head and Sponsor

Ilesanmi Adesida, Dean

Linda Katehi, Provost

STATEMENT FOR THE PROGRAMS OF STUDY CATALOG:

(Only portions affected are indicated)

Curriculum in Agricultural and Biological Engineering

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For the Degree of Bachelor of Science in Agricultural and Biological Engineering

Agricultural and biological engineering is the application of science, mathematics, and engineering to agriculture, food systems, natural resources, the environment, and related biological systems. This degree program has special emphasis on environmental protection and the biological interface of plants, animals, and soils with the design and performance of environments, machines, mechanisms, processes, and structures.

Elsewhere in the body of the text, in tables, and in footnotes, numerous references to "Agricultural Engineering" are changed to "Agricultural and Biological Engineering".

EFFECTIVE DATE: Fall 2008