Approved by the Board of Trustees

May 19, 2022

14

Board Meeting

May 19, 2022

## ESTABLISH THE BACHELOR OF SCIENCE IN ENVIRONMENTAL ENGINEERING, THE GRAINGER COLLEGE OF ENGINEERING, URBANA

**Action:** Establish the Bachelor of Science in Environmental Engineering, The

Grainger College of Engineering

**Funding:** Tuition revenue from the program is expected to cover any funding needed that may result from a need to increase sections of required courses. As the required courses already exist, they will be covered by existing faculty. No new faculty hires, technical resources, or facilities are needed.

The Chancellor, University of Illinois Urbana-Champaign, and Vice President, University of Illinois with the advice of the Urbana-Champaign Senate recommends approval of a proposal from The Grainger College of Engineering to establish the Bachelor of Science in Environmental Engineering.

Environmental engineering is a profession that aims to achieve healthy, prosperous, and equitable communities while simultaneously maintaining the ecosystems that support them. The proposed Bachelor of Science in Environmental Engineering (B.S. in EnvE) seeks to provide rigorous, focused training at the intersection of the natural sciences and engineering fundamentals. The proposed program is expected to attract a wide range of students who may have otherwise applied to environmental engineering bachelor’s programs at other institutions. The B.S. in EnvE’s unique attributes include the integration of atmospheric sciences with infrastructure planning and design, the development of computational skills including mathematical techniques to work with environmental and temporal datasets, the incorporation of engineering design experience distributed across the curriculum, and the provision of concentration areas and coursework in emerging areas of critical importance in the 21st century.

Environmental engineering has a distinct body of knowledge, and related professions have grown rapidly in recent decades. Increasingly dynamic interactions between nature and society necessitate that environmental engineers receive targeted training in climate projections and climate change mitigation and adaptation. These professions are associated with two of the three engineering occupations with the largest projected percentage employment increases through 2029. Environmental engineering is the only engineering discipline for which 50 percent or greater of awarded B.S. degrees in the United States are awarded to women, and this field has been demonstrated to be of greater interest than civil engineering among middle and high school students identifying as African American, Native American, Latino/a, Southeast Asian, and Caucasian.

Students in the proposed program will be uniquely trained in environmental engineering and the natural sciences. They will be skilled in computational tools, climate adaptation and mitigation, and the design and advancement of environmental infrastructure and technologies. They will also be competent in analytical and computational approaches necessary for the analysis, planning, and design of environmental infrastructure and technologies. Graduates will thus be well-positioned to pursue professional degree programs in engineering as well as diverse programs related to environmental policy, public health, and the natural sciences. Graduates will be equally prepared to enter the industry as environmental or water resource engineers.

Impact of the proposed program on funding, instructional resources, and student-to-faculty ratios is anticipated to be manageable with current resources or can be covered with tuition revenue in the event additional teaching assistants are needed to staff course sections. The B.S. in Environmental Engineering’s major coursework draws upon existing courses currently offered and taught by existing faculty. No new courses are needed, and existing courses have capacity to enroll the additional enrollment the department expects to happen with the new major, or additional discussion sections can be added if needed with teaching assistants funded by tuition revenue. No new or additional facilities, significant improvements to existing facilities, or additional resources from the University Library are needed.

The Board action recommended in this item complies in all material respects with applicable State and federal laws, University of Illinois *Statutes, The General Rules Concerning University Organization and Procedure*, and Board of Trustees policies and directives.

The Interim Executive Vice President and Vice President for Academic Affairs concurs with this recommendation. The University Senates Conference has indicated that no further Senate jurisdiction is involved.

The President of the University of Illinois System recommends approval. This action is subject to further review by the Illinois Board of Higher Education.