

**ILLINOIS STATE
UNIVERSITY**

**BOARD OF
TRUSTEES**

Resolution No. 2023.05/17
Approval of B.S. in Engineering

Resolution

Whereas, the Board of Trustees, as authorized by the Board of Trustees Governing Document, Section A, Government Statutes, Subsection 5, Reservation of Powers, has reserved to itself the final decision-making authority for the establishment of any new unit of instruction requiring approval by the Illinois Board of Higher Education.

Therefore, be it resolved that the Board of Trustees approves the proposal for degree granting authority for the B.S. in Engineering.

Board Action on: _____
Motion by: _____
Second by: _____
Vote: Yeas: _____ Nays: _____

Postpone: _____
Amend: _____
Disapprove: _____
Approve: _____

ATTEST: Board Action, May 12, 2023

Secretary / Chairperson

**Board of Trustees
Illinois State University
Approval of B.S. in Engineering**

The Bachelor of Science in Engineering (BSE) degree provides students an opportunity to develop and expand their design abilities and technical backgrounds by pursuing a program of study that matches their own interests and professional goals within the framework of an ABET-accredited degree. Areas of concentration are interdisciplinary and may include Sustainability, Agricultural, and Assistive Technologies Engineering or Engineering Entrepreneurship. In addition to the Capstone courses required in the BSE, BSEE, and BSME, the BSE also includes a third- year internship or research immersion experience that embeds students in the practice of their chosen concentration. BSE graduates will engage in engineering design thinking and engineering principles and standards to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors. The use of experimentation, analysis and interpretation of data, engineering judgment, and ethics are developed in this program, allowing students to be job and graduate school ready.

The BSE program will be administered by the College of Engineering and delivered by faculty from the Departments of Mechanical and Electrical Engineering. This will be the one of the first three degrees offered by the College.

Demand for engineering professions is high in Illinois and the six surrounding states. Demand for engineers (discounting electrical and mechanical engineers) is projected to grow by 4.9% in Illinois and 2.2% nationally by 2030-31, compared to the previous decade (Illinois Department of Employment Security. Long-Term Occupational Projections [2020-2030], Bureau of Labor Statistics, U.S. Department of Labor [2021-2031]). The proposed degree will not only provide an innovative and rigorous engineering program of study but also the integration of both electrical and mechanical engineering principles and a strong background in design. The proposed College degree programs will increase both the number of Illinois residents attaining a degree and the number of high-quality post-secondary credentials available to meet demand, especially since some qualified high school graduates choose to leave Illinois if they are not accepted into the engineering program of their choice. Providing these additional opportunities may help curb ongoing emigration and meet the growing needs of local industries and engineering firms. Finally, the intentional focus on equity, diversity, and inclusion will allow Illinois State University to effectively serve students who are traditionally underrepresented and underserved in engineering programs. This focus is enacted by connecting to authentic contexts that are relevant to students, teaching teamwork skills and utilizing team-based learning, and emphasizing engineering ethics and designing with empathy and integrity.

The program proposal has been developed by an ad hoc committee of Illinois State University faculty with experience and expertise related to the field of Engineering. The program was developed in response to a high need in the state and many requests for such a program from prospective students. The program is expected to enroll up to 10 new students each year. Faculty teaching in the program will deliver the new program at its inception, with additional instructional capacity provided by the Office of the Provost as necessitated by enrollment growth. The Department has obtained letters of support from all collaborating academic units.

Faculty has developed 33 new courses (EGR, ELE, and MEC) for the program (including overlap with the other new engineering degree programs). ABET-accredited engineering programs require a minimum 45 hours of engineering credits and 30 hours of mathematics and natural science credits. These necessitate more than 66 hours required for the major. These considerations, along with ISU's general education requirements, have pushed the degree program to 122 credits, which has been deemed allowable by the AVP for Undergraduate Education.

The proposal was approved by the Academic Senate on April 26, 2023.