

**ILLINOIS STATE
UNIVERSITY**

**BOARD OF
TRUSTEES**

Resolution No. 2023.05/18
Approval of B.S. in Electrical
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 Electrical 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 Electrical Engineering**

The proposed B.S. in Electrical Engineering will prepare to enter a professional engineering discipline focused on the study and application of electromagnetic phenomena to create devices and systems that address societal challenges and opportunities. Engagement in engineering design, practice and problem-solving begin early in the degree program, concurrent with foundational mathematics and science courses to build theoretical knowledge necessary for developing the advanced knowledge and creative mindset associated with professional practice. Once mathematics, natural sciences, and engineering design fundamentals sequences are completed, students complete their degree with a set of topic courses across the electrical engineering discipline as well as specialized focused concentration courses. The program emphasizes the blending of theory and practice culminating in a one-year long senior capstone project. Distinguishing characteristics of the ISU BSEE program are 1). A strong interdisciplinary structure including the melding of electrical engineering, mechanical engineering, and software applications, 2). A focus on equitable and inclusive practices that train engineers to design with empathy and keep justice in mind, and 3). An integration of information literacy throughout the curriculum, resulting in engineers that think and evaluate information critically within and beyond their electrical engineering discipline.

The program will be administered by the Department of Electrical Engineering in the College of Engineering. This will be the first degree program offered by the department, and one of the first three offered by the College.

Demand for engineering professions is high in Illinois and the six surrounding states. Demand for electrical engineers is projected to grow by 7.4% in Illinois and 3.2% 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]). Current and projected need for electrical engineers in the state is significant. 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 60 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 23 new courses (EGR and MEC courses) for the program. 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.