

APPROVED
MARCH 15, 2022

Item #E-2
March 15, 2022

**NEW UNITS OF INSTRUCTION, PUBLIC SERVICE,
AND RESEARCH AT PUBLIC UNIVERSITIES**

Submitted for: Action.

Summary: This item requests approval of one college and two departments at one public university.

Action Requested: That the Illinois Board of Higher Education approves the following:

Illinois State University

- College of Engineering in the Central Region
- Department of Electrical Engineering in the Central Region
- Department of Mechanical Engineering in the Central Region



STATE OF ILLINOIS
BOARD OF HIGHER EDUCATION

**NEW UNITS OF INSTRUCTION, PUBLIC SERVICE,
AND RESEARCH AT PUBLIC UNIVERSITIES**

By statute, the Illinois Board of Higher Education (IBHE) is responsible for approving new on-campus and off-campus units of instruction, organized research, and public service, and units of administration proposed by public university governing boards. The Board's approval criteria, defined in rules adopted for administering the statute, addresses university mission, academic control, faculty and staff, support services, financial resources, student demand, curriculum, statewide need, and congruence with Board policies and priorities. In addition to the approval criteria in rules, each new program was reviewed for its contributions to the goals of *A Thriving Illinois: Higher Education Paths to Equity, Sustainability, and Growth*, which sets forth priorities to guide Illinois higher education. Staff recommendations are based on analyses of application materials and responses to staff questions.

Executive Summary – Public Institutions

Illinois State University

- College of Engineering in the Central Region
- Department of Electrical Engineering in the Central Region
- Department of Mechanical Engineering in the Central Region

Illinois State University (ISU or the University) is seeking authorization to establish the College of Engineering (College) in the Central Region. The College of Engineering will serve as the administrative and academic structure for two departments and three degrees in electrical, mechanical, and general engineering. Illinois State University is also seeking authorization to establish the Department of Electrical Engineering and the Department of Mechanical Engineering. The departments and future degree programs will all be designed to foster interactive collaboration with other colleges and units across the University.

In its proposal for the College of Engineering, Illinois State University has articulated a vision and plans centered on equity to change the status quo in terms of who enrolls, persists, and completes degrees in the field. The University has submitted a vision statement for the College of Engineering: "Our vision is that Illinois State University Engineering is recognized for excellence in the education of a diverse community of students who possess the attitudes, behaviors, and skills of engineering professionals. Building upon our Engaged Institution culture, Illinois State University Engineering prepares graduates for success by melding theory and practice in core engineering disciplines and innovative cross-disciplinary experiences." The College is designed to meet several goals including (i) creating educational opportunity for underrepresented and underserved students, including women and persons of color, to successfully enter engineering professions; (ii) workforce development; and (iii) providing additional opportunities for Illinois students who wish to study engineering to do so without having to leave the state.

The University has laid out goals and plans to exceed state and national trends for the enrollment, retention, and completion of underrepresented and underserved populations, becoming a model for diversity, equity, and inclusion. The goals are as follows:

- Recruiting a diverse cohort of engineering students to pursue higher education in Illinois and offering ongoing and robust financial aid support;
- Creating a student-centered institutional culture and offering targeted support services to close opportunity gaps for students who have been historically underserved and underrepresented in the field of engineering;
- Achieving inclusive teaching excellence by implementing a curriculum that is innovative, experiential and industry-informed; embedding individualized student experiences through implementing a variety of high impact practices; and providing flexibility in curricular pathways for both first-time-in-college and transfer students;
- Recruiting and retaining faculty, staff, and administrators from historically underserved and underrepresented groups;
- Developing a facility that provides space for interdisciplinary and collaborative engagement and teaching and research laboratories with innovative equipment; and
- Engaging with industry partners, both local and beyond, to align curriculum and applied student experiences so that graduates are effectively prepared to enter the workforce.

To achieve this equity vision, the University has drawn from research about supporting the success of traditionally underserved and underrepresented students; in particular, the University drew from best practices in engineering education from the American Society for Engineering Education's Diversity Recognition Program comprised of leaders in engineering education programs that have successfully served traditionally underserved and underrepresented students. The University has developed a robust, integrated set of evidence-based strategies to support the success of underrepresented students. These strategies include targeted recruitment efforts for first-time and transfer students; strategies to support student self-efficacy, identity, and belonging; and financial supports. The University plans to allocate a total of \$504,000 per cohort to support the recruitment and retention of students for a total of over \$2.13 million to be spent annually by the fourth year of the program. To ensure students from low-income families are supported, each year, ISU will devote a minimum of \$250,000 per cohort specifically to provide scholarships to attract and retain underrepresented students. In most cases, the funding will be in addition to federal financial aid (PELL) or State of Illinois student aid (MAP) or other donor supported scholarship aid for which students might qualify.

Illinois State University has created a curricular and academic support framework with embedded strategies that will promote student success. First-year semesters will be limited to 15 credit hours with a balance of general education, mathematics, and science and engineering topics taught using a co-requisite model. Beginning in the first semester, engineering courses will have hands-on, design and experiential activities so that students have opportunities to bring their knowledge and experiences to bear on engineering problems including solving problems that are experienced by marginalized communities. In addition, first-year requirements have been designed for high compatibility with courses or content equivalencies in community colleges to support seamless transfer. Students will be engaged in faculty research; internships; living and learning communities; pre-professional mentorships and networking with alumni and industry leaders; and organizations such as the Society of Black Engineers, the Society of Professional Hispanic Engineers, and the Society of Women Engineers. These high-impact practices have been shown to support the academic success of historically underrepresented and underserved students in engineering.

The University has engaged an array of industry partners in planning the proposed College of Engineering, including Rivian Automotive Inc., Archer Daniels Midland, Toyota Motor Corporation, and Farnsworth Group, Inc. Letters of support were included in the application. These and other industry partners will continue to inform the engineering curriculum and research agenda through formal partnerships and advisory structures. They will also provide opportunities for students to engage in internships which will be required in all engineering degree programs.

The funding, staffing, space, and equipment for the College of Engineering will come from the University's institutional operating funds. The estimated total capital project cost of \$44 million will cover building renovations, program laboratory equipment, and the renovation or addition of teaching labs in other existing University programs and administrative office space. The University will fund the initial implementation of the College and Departments with central reserve funds, which are projected to be approximately \$1.2 million for the first two years to cover upfront costs prior to the enrollment of students to the planned programs. Illinois State University plans to grow the program to serve, by the fourth year of operations, approximately 520 engineering students annually. Initial enrollment is projected to be approximately 130 students.

Approval request summary, including staff conclusion, follows in Attachment A.

The staff recommends adoption of the following resolutions:

The Illinois Board of Higher Education hereby grants to Illinois State University authorization to establish the College of Engineering, the Department of Electrical Engineering, and the Department of Mechanical Engineering in the Central Region, subject to the institution's implementation and maintenance of the conditions that were presented in its application and that form the basis upon which this authorization is granted.

Illinois State University

Proposed Center Title in the Region of Authorization: College of Engineering

New Administrative Unit: The proposal is for the establishment of the College of Engineering in the Central Region. The College of Engineering will serve as the administrative and academic structure for two departments and three degrees in electrical, mechanical, and general engineering.

Proposed Center Title in the Region of Authorization: Department of Electrical Engineering

New Administrative Unit: The proposal is for the establishment of the Department of Electrical Engineering. The Department of Electrical Engineering will serve as the administrative and academic structure for future degree in electrical engineering.

Proposed Center Title in the Region of Authorization: Department of Mechanical Engineering

New Administrative Unit: The proposal is for the establishment of the Department of Mechanical Engineering. The Department of Mechanical Engineering will serve as the administrative and academic structure for future degree in mechanical engineering.

Background

Illinois State University (ISU or the University) is seeking authorization to establish the College of Engineering (College) in the Central Region. The College of Engineering will serve as the administrative and academic structure for two departments and three degrees in electrical, mechanical, and general engineering. Illinois State University is also seeking authorization to establish the Department of Electrical Engineering and the Department of Mechanical Engineering. The departments and future degree programs will all be designed to foster interactive collaboration with other colleges and units across the University.

In its proposal for the College of Engineering, Illinois State University has articulated a vision and plans centered on equity to change the status quo in terms of who enrolls, persists, and completes degrees in the field. The College is designed to meet several goals including (i) creating educational opportunity for underrepresented and underserved students, including women and persons of color, to successfully enter engineering professions; (ii) workforce development; and (iii) providing additional opportunities for Illinois students who wish to study engineering to do so without having to leave the state.

The University has laid out goals and plans to exceed state and national trends for the enrollment, retention, and completion of underrepresented and underserved populations, becoming a model for diversity, equity, and inclusion.

To achieve this equity vision, the University has drawn from research about supporting the success of traditionally underserved and underrepresented students; in particular, the University drew from best practices in engineering education from the American Society for Engineering Education's Diversity Recognition Program comprised of leaders in engineering education programs that have successfully served traditionally underserved and underrepresented students. To further triangulate the findings on best practices in engineering education, the University's leadership facilitated a roundtable of deans, department chairs, faculty, and diverse engineering and STEM

alumni representing colleges of Engineering and other STEM programs within Illinois and from across the country. The feedback from the group informed the development of a robust, integrated set of evidence-based strategies to support the success of underrepresented students. These strategies include targeted recruitment efforts for first-time and transfer students; strategies to support student self-efficacy, identity, and belonging; and financial supports. The University plans to allocate a total of \$504,000 per cohort to support the recruitment and retention of students for a total of over \$2.13 million to be spent annually by the fourth year of the program. To ensure students from low-income families are supported, each year, ISU will devote a minimum of \$250,000 per cohort specifically to provide scholarships to attract and retain underrepresented students. In most cases, the funding will be in addition to federal financial aid (PELL) or State of Illinois student aid (MAP) or other donor supported scholarship aid for which students might qualify.

Illinois State University has created a curricular and academic support framework with embedded strategies that will promote student success. First-year semesters will be limited to 15 credit hours with a balance of general education, mathematics, and science and engineering topics taught using a co-requisite model. Beginning in the first semester, engineering courses will have hands-on, design and experiential activities so that students have opportunities to bring their knowledge and experiences to bear on engineering problems, including solving problems that are experienced by marginalized communities. In addition, first-year requirements have been designed for high compatibility with courses or content equivalencies in community colleges to support seamless transfer. Students will be engaged in faculty research; internships; living and learning communities; pre-professional mentorships and networking with alumni and industry leaders; and organizations such as the Society of Black Engineers, the Society of Professional Hispanic Engineers, and the Society of Women Engineers. These high-impact practices have been shown to support the academic success of historically underrepresented and underserved students in engineering.

Need

1050.30(a)(6): A) The unit of instruction, research or public service is educationally and economically consistent with the educational priorities and needs of the State of Illinois. B) The unit of instruction, research or public service meets a need that is not currently met by existing institutions and units of instruction, research or public service.

The University commissioned a feasibility study in 2016 to gauge interest in engineering programs and employment prospects in the field. This study found that demand as indicated by job postings for mechanical engineers would increase by 15 percent regionally and 40 percent statewide, and demand for electrical engineers was projected to increase by 62 percent regionally and 37 percent in Illinois from 2013-2017. With respect to electrical engineering, the study indicated that regional employers sought bachelor's-level electrical engineering professionals in 58,409 job postings from September 2016 to August 2017. There were 9,069 postings in Illinois during that same period. Currently, Illinois employment projection for engineering from 2018 to 2028 is 3.5 percent (accounting for COVID impact) according to the Illinois Department of Employment Security. National employment projections also show an increasing trend. According to the Bureau of Labor Statistics (BLS), employment of electrical and mechanical engineers is projected to increase by seven percent from 2020 to 2030.

Analytics from the University's website traffic also show that engineering programs rank third in terms of prospective student inquiries with over 7,100 searches for the keyword "engineering" within the last year. In addition, the University's longstanding industry partnerships have contributed and will continue to inform the engineering curriculum and research agenda. These

local industry partners include Rivian Automotive Inc., Archer Daniels Midland (ADM) company, Toyota Motor Corporation, and Farnsworth Group, Inc. Each provided letters of support, highlighting the growing demand for engineering positions and the unmet need for trained engineers from Illinois institutions of higher education. For example, ADM's letter of support indicates that the company is one of the employers in Illinois that annually needs approximately 400 more trained engineers than are produced by the existing engineering programs at universities in the state.

Furthermore, the existing inequities by race, ethnicity, and gender within the discipline of engineering are widely known. Nationally, White and Asian-American students represent about three-quarters of all undergraduate engineering majors, while African American and Hispanic students' representation consistently remain disproportionately small with statewide minority student enrollment rate of 17.5 percent and 21.2 percent for electrical and mechanical engineering respectively. Overall, women currently represent approximately 22 percent of the undergraduate engineering population, which is significantly below the general domestic undergraduate population of women across all majors. In addition to drawing on a framework of evidence-based strategies to promote the recruitment, retention, and success of underrepresented students, the College will establish an Engineering Advisory Committee (EAC). The EAC membership will include a broad cross-section of engineering leaders and practitioners with the majority from current or future local industrial organization partners but also with representation from regional and national companies, as well as experts in the scholarship of engineering education. These scholars in engineering education will contribute their deep understanding of trends in the discipline and help the College refine implementation of strategies to support student success. The equity-focused design of ISU's proposed engineering programs will prepare a more diverse set of engineers entering into the workplace which will benefit not only the graduates, but also future employers and the State of Illinois.

Academic units similar to the proposed College and Departments exist in public and private institutions in Illinois. The following public and private institutions of higher education in Illinois have a college, school, or department that offers undergraduate programs in general, electrical, and mechanical engineering. Illinois State University will be the first institution to develop a College of Engineering that, from the outset, is designed to achieve equity in the recruitment, retention, and completion of historically underrepresented and underserved students.

Institution	Academic Unit	Sector
Bradley University	Caterpillar College of Engineering and Technology	Private
Eastern Illinois University	College of Liberal Arts & Sciences/ Department of Physics	Public
Greenville University	College of Arts and Sciences/ Department of Engineering and Physics	Private
Illinois Institute of Technology	Armour College of Engineering	Private
North Central College	College of Arts & Sciences/Department of Computer Science and Engineering	Private
North Park University	College of Arts & Sciences/Department of Engineering	Private

Northern Illinois University	College of Engineering and Engineering Technology/ Department of Engineering	Public
Northwestern University	McCormick School of Engineering	Private
Olivet Nazarene University	School of Engineering	Private
Southern Illinois University Carbondale	College of Engineering	Public
Southern Illinois University Edwardsville	School of Engineering	Public
University of Illinois Chicago	College of Engineering	Public
University of Illinois Urbana Champaign	The Grainger College of Engineering	Public
Western Illinois University	School of Engineering	Public

*Note: Other colleges and universities offering engineering programs exist in Illinois. The list provides administrative structures similar to the proposed units of administration.

A Thriving Illinois: Higher Education Paths to Equity, Sustainability, and Growth

The proposed College and Departments will support Goal 1, Equity of A Thriving Illinois to *close the equity gaps for students who have historically been left behind*. The College and Departments will intentionally direct effort towards the recruitment of underserved and underrepresented students with the goal of exceeding state and national averages for enrollment. Specifically, ISU plans to exceed the national enrollment rates for minority students of 17.5 percent and 15.5 percent and state enrollment rates for minority students of 17.5 percent and 21.2 percent (in 2019) for Electrical and Mechanical Engineering, respectively. The University has set an initial goal to enroll 30-35 percent students of color, growing from there. Similarly, ISU plans to exceed the national female engineering enrollment rate of 22 percent. To attract students who may not otherwise consider a degree in engineering, the University will partner with community-based organizations and all-female high schools in racially and ethnically diverse urban areas. The University will also continue recruitment events on and off campus where students from underrepresented groups and their parents are invited to attend. These events offer insight into campus life, financial aid, the admissions process, and other aspects of Illinois State University. Prospective students interact with current students as part of these events. As a result of these efforts, in Fall 2021, the University enrolled its most racially diverse freshman class with about one-third of the group being Pell eligible.

The College of Engineering will also be part of the University's established partnerships with community colleges, ensuring seamless transfer. Programs of study have been designed to allow transfer from community colleges into the second year supported by formal transfer agreements and sample plans of study. Engineering course-level transfers will be addressed through the Illinois Articulation Initiative for Engineering Majors. Reverse transfer options are also available to students who transfer to Illinois State University from a community college and who wish to have their coursework at ISU count toward the completion of an associate degree.

The University is committed to investing in affirming spaces and promoting a sense of self-efficacy, belonging, and identity. The University anticipates offering a living and learning community in one or more residence halls specifically for engineering students. College of Engineering students will have access to resources in the Multicultural Center, as well as student organizations of the Society of Black Engineers, the Society of Professional Hispanic Engineers, and the Society of Women Engineers. Other student affinity groups such as the Association of Latinx American Students, the Black Student Union, PRIDE, the Solar Car Team, and the Engineering and Technology Club offer opportunities to connect and develop leadership skills. Plans are also under way to engage alumni from professional and affinity groups to mentor and support students in the College of Engineering.

The proposed College and Departments will contribute to Goal 2 – Sustainability to *build a stronger financial future for individuals and institutions by finding ways to reduce the financial burden of education* on students and their families. The University plans to allocate a total of \$504,000 per cohort to support the recruitment and retention of students for a total of over \$2.13 million to be spent annually by the fourth year of the program. To ensure students from low-income families are supported, each year, ISU will devote a minimum of \$250,000 per cohort specifically to provide scholarships to attract and retain underrepresented students. Once awarded, students will receive the funds for all four years, as long as they remain in good academic standing. In most cases, the funding will be in addition to federal financial aid (PELL) or State of Illinois student aid (MAP) or other donor supported scholarship aid for which students might qualify. Underrepresented and underserved engineering students will also qualify for Redbird Scholarships that vary in amounts from \$2,000 per year to \$6,000. Institutional analysis shows that given this assortment of financial aid assistance, an underrepresented student from a family with zero expected family contribution and with a good grade point average will potentially receive up to \$25,000 in financial aid, sufficient to entirely cover their cost of attendance, including tuition, fees, and room and board. The University will monitor the effectiveness of this strategy and consider adding grant dollars to support the plan as enrollment in the College increases. The financial assistance will make college more affordable and help to retain underrepresented students. The engineering programs will require internships, which will be sources of employment recruiting for participating companies as well as opportunity for students to acquire valuable technical skills that can make them more marketable in the labor market.

The proposed College and Departments will also contribute to Goal 3, Growth, to *increase talent and innovation to drive economic growth*. The College and Departments will seek both regional and national industry partnerships to enhance employment opportunities for graduates of the programs. To gauge employer interest and needs, the University's engineering program workgroup members met with the executives and representatives of local industry partners at Caterpillar, Inc., Toyota Motor Corporation, The Archer Daniels Midland company, Avangrid, Inc., Vantage Technology Consulting Group, CannonDesign, Farnsworth Group, Inc., and CCJM Engineers. Employers expressed support for the institution's plan to implement engineering programs that attract a more diverse population of students. For example, Farnsworth Group, Inc. endorsed the University's plan for an inclusive engineering program because it aligns with the company's core value to make engineering and career opportunities more inclusive and equitable to all and will help them recruit and hire workforce-ready graduates from a diverse local talent pipeline. Consistent with regional and state data, national trend in employment in engineering fields is projected to increase from 2020-2030. According to the Bureau of Labor Statistics, the median annual wage for electrical engineers was \$100,830 in May 2020. The lowest ten percent earned less than \$64,210, and the highest ten percent earned more than \$167,410. The median annual

wage for mechanical engineers was \$90,160 in May 2020. The lowest ten percent earned less than \$58,410, and the highest ten percent earned more than \$141,060.

Employment Projection and Median Wage

Employment Category	Annual Median Wage Per Annum (2020)	Employment Projections (2020-2030)
Electrical and Electronics Engineers	\$100,830	7%
Mechanical Engineers	\$90,160	7%

Mission and Objectives

1050.30(a)(1): A) The objectives of the unit of instruction, research or public service are consistent with the mission of the college or university. B) The objectives of the unit of instruction, research or public service are consistent with what the unit title implies.

The proposed College and Departments are in alignment with the overall mission of the University and are consistent with the purpose, goals, objectives, and mission of the University. The University has submitted a vision statement for the College of Engineering: "Our vision is that Illinois State University Engineering is recognized for excellence in the education of a diverse community of students who possess the attitudes, behaviors, and skills of engineering professionals. Building upon our Engaged Institution culture, Illinois State University Engineering prepares graduates for success by melding theory and practice in core engineering disciplines and innovative cross-disciplinary experiences."

To achieve the vision, The University has outlined the following goals:

- Recruiting a diverse cohort of engineering students to pursue higher education in Illinois and offering ongoing and robust financial aid support;
- Creating a student-centered institutional culture and offering targeted support services to close opportunity gaps for students who have been historically underserved and underrepresented in the field of engineering;
- Achieving inclusive teaching excellence by implementing a curriculum that is innovative, experiential and industry-informed; embedding individualized student experiences through implementing a variety of high impact practices; and providing flexibility in curricular pathways for both first-time-in-college and transfer students;
- Recruiting and retaining faculty, staff, and administrators from historically underserved and underrepresented groups;
- Developing a facility that provides space for interdisciplinary and collaborative engagement and teaching and research laboratories with innovative equipment; and
- Engaging with industry partners, both local and beyond, to align curriculum and applied student experiences so that graduates are effectively prepared to enter the workforce.

Curriculum/Assessment

1050.30(b)(1) [applicable only to units of instruction]: A) The caliber and content of the curriculum must assure that the objectives of the unit of instruction will be achieved. B) The breadth and depth of the curriculum must be consistent with what the title of the unit of instruction implies. C) The admission and graduation requirements for the unit of instruction must be consistent with the stated objectives of

the unit of instruction. D) Institutions must show the capacity to develop, deliver and support academic programs. Procedures and policies that will assure the effective design, conduct and evaluation of the degree programs under the academic control of the institution must be developed. Assessment plans must demonstrate that the institution has identified clear and appropriate program and student learning goals and has defined appropriate outcomes. Appropriate data must be collected and may be requested by the Board to show the level of student learning that has occurred as a result of participation in the institution's programs of study.

1050.30(a)(2): The design, conduct and evaluation of the unit of instruction, research or public service are under the direct and continuous control of the sponsoring institution's established processes for academic planning and quality maintenance.

Curriculum

The University anticipates requesting authorization from the Illinois Board of Higher Education to begin offering undergraduate degrees in engineering beginning in Fall 2024. The University's engineering workgroups produced an engineering educational framework with templates for curricula in electrical, mechanical, and general engineering. The College programs will infuse a user-centered design throughout the curriculum and implement best practices in engineering education, including approaches specifically designed to support the success of students of color and other underrepresented groups.

Specific attention has been given to the first-year experience of students with an array of wrap-around orientation and support programs designed to engage students, particularly those from populations historically underrepresented. First-year semesters will be limited to 15 credit hours with a balance of general education, mathematics, and science and engineering topics taught using a co-requisite model. Students will participate in an Introduction to Engineering course that will be required for students in all the engineering programs. This and other engineering courses will have hands-on, design and experiential activities so that students have opportunities to bring their knowledge and experiences to bear on authentic engineering problems. In addition, first-year requirements have been designed for high compatibility with courses or content equivalencies in community colleges to support seamless transfer.

The College will develop engineering organizational partnerships to enhance the educational experience of students with an emphasis on experiential learning at every level of study. This will be supported by the University's innovation hub and makerspace through the Illinois Innovation Network. Some examples include:

- Internships, which will be required in all engineering degree programs;
- Access through donation or loan of equipment from member companies to give students experience immediately applicable to future work and that can also be used by the supporting companies for additional training or testing;
- Projects, both at the course level and capstone level, to offer students the opportunity to work on genuine real-world problems; and
- Sponsored research and development projects to give students opportunities for individual work and open-ended problem solving and provide industrial sponsors with data that inform strategic directions.

Collectively, these strategies provide student teams opportunities to engage in complex, authentic problems. Teaching about theory and equipment is presented as needed to solve these

problems. These approaches foster a sense of belonging and can prepare students to solve problems, including those experienced by marginalized communities.

The curriculum will be complemented by a variety of touchpoints to support student academic success. A student success dashboard, and predictive analytics will be used to identify students at high risk of failure or attrition and to provide proactive supports. Tutoring, peer academic coaching, advising, and other academic support efforts are complemented by other holistic supports coordinated through the Redbird Care Team. The Redbird Care Team is a cross-divisional team that serves as a referral point for student concerns and can make determinations about interventions that will help students to persist such as micro-grants for financial needs. College of Engineering students will be supported by these University-wide systems.

Across electrical, mechanical, and general engineering programs, students will be engaged in high-impact practices in and out of the classroom that have been shown to support the academic success of all students but especially those from historically underrepresented and underserved demographics in engineering. These include opportunities to engage with faculty in research, participate in pre-professional mentorships and networking with alumni and industry leaders; and be part of organizations such as the Society of Black Engineers, the Society of Professional Hispanic Engineers, and the Society of Women Engineers. Engineering students will have the opportunity to participate in events such as the Startup Showcase, a student business startup competition, sponsored by the George R. and Martha Means Center for Entrepreneurial Studies at the University. Students will also have opportunities to participate in a wide range of technology-based extracurricular activities and experiences.

Assessment of Outcomes

Data collected by the American Society for Engineering Education indicate that over the last 60 years, U.S. engineering graduation rates have been about 50 percent. The University has set a goal to exceed these graduation rates, particularly for students of color and other underrepresented groups. The goal is for the College of Engineering to meet or exceed the overall six-year graduation rate at Illinois State University of 67.3 percent.

The University is currently engaged in a multi-year initiative to develop an institution-wide framework for student success that aligns with the Comprehensive Plan to Promote Diversity, Equity, Inclusion, and Anti-Racism. The institutional student success framework will focus on expanding the definition of student success beyond the traditional metrics of retention and graduation; will employ collaborative, coordinated, and integrated processes to accomplish goals; will expand data informed decision-making; establish a clear connection between faculty and student success; analyze university practices for their impact on student success with an emphasis on diversity, equity, and inclusion; identify and eliminate inequitable institutional barriers, practices, and policies to student success and develop paths towards multidimensional inclusiveness; and secure a financial structure dedicated to student success and the identified initiatives. Once created, the College of Engineering and its two departments will develop a set of metrics within the context of this broader institutional student success framework to measure progress towards attaining equity, diversity, and inclusion goals. Examples include undergraduate student application and yield data; tracking unmet need per student based on income level; tracking out-of-pocket expenses; and participation rate in inclusive, and high impact co-curricular learning experiences outside of the classroom. These will be disaggregated and analyzed by demographic groups (e.g., gender, race, and ethnicity).

Facilities (space, equipment, instructional materials)

1050.30(a)(4): A) Facilities, equipment and instructional resources (e.g., laboratory supplies and equipment, instructional materials, computational equipment) necessary to support the high quality academic work in the unit of instruction, research or public service are available and maintained. B) Clinical sites necessary to meet the objectives of the unit of instruction, research or public service. C) Library holdings and acquisitions, owned or contracted for by the institution, that are necessary to support high quality instruction and scholarship in the unit of instruction, research and public service, are conveniently available and accessible, and can be maintained.

Existing facilities at the University will be used for the proposed College and Departments. The John Green building, an 80,000 square feet structure on the University's campus, will be renovated to house the proposed College of Engineering and will accommodate between 520 and 720 students. Infrastructure will be designed to support student engagement and experiential learning with spaces to allow for flexible seating and collaboration. The University's Milner Library has appropriate library resources to support instruction and scholarship in the College and Departments. These resources will be enhanced through the University's commitment of \$100,000 per year for library subscriptions specifically demarcated for the College of Engineering.

Faculty and Staff

1050.30(a)(3): A) The academic preparation and experience of faculty and staff ensure that the objectives of the unit of instruction, research or public service are met. B) The academic preparation and experience of faculty and staff, as evidenced by level of degrees held, professional experience in the field of study and demonstrated knowledge of the field, ensure that they are able to fulfill their academic responsibilities. At a minimum, faculty shall have a degree from an institution accredited by a U.S. Department of Education and/or Council for Higher Education Accreditation recognized accrediting body or a degree from another country evaluated for U.S. equivalency in the discipline they will teach or for which they will develop curricula at least one level above that of the courses being taught or developed. C) The involvement of faculty in the unit of instruction, research or public service is sufficient to cover the various fields of knowledge encompassed by the unit, to sustain scholarship appropriate to the unit, and to assure curricular continuity and consistency in student evaluation. E) Support personnel, including but not limited to counselors, administrators, clinical supervisors, and technical staff, that are directly assigned to the unit of instruction, research or public service, have the educational background and experience necessary to carry out their assigned responsibilities.

The College of Engineering will be led by a dean who will report to the provost. An associate dean, two department chairs and other administrative staff will report to the dean. The provost will report to the university president. From the start of program implementation, the College of Engineering will also prioritize hiring a diversity officer who will report directly to the dean and be responsible for driving the College's mission and goals of intentional hiring and retention of diverse and culturally competent faculty capable of delivering enriching academic and research learning environment for a diverse student body.

The University has committed to begin operations with a diverse faculty profile. A University-wide campus climate team has worked on advancing the institution's hiring practices with respect to equity, diversity, and inclusion. This includes the Provost's Office plan to increase funding from about \$60,000 to \$400,000 annually for faculty diversity recruitment and retention. With matching funds from colleges and departments, Illinois State University expects to invest \$4.5 million over the next five years to ensure that faculty diversity mirrors student diversity profiles. The College of

Engineering will be part of this initiative.

At anticipated steady state enrollment of 520 students, the College will hire 21 tenure track faculty members to teach and engage in scholarly activities and service as part of their appointments. As enrollment grows, additional faculty will be added to maintain faculty to student ratio of 1:24. To meet increased demand in courses in other departments, Illinois State University will also initially allocate six new tenure track faculty lines in supporting units heavily impacted by the addition of engineering students (e.g., Mathematics, Physics, English). The College will seek both regional and national industry partnerships and a search advocate program to increase the diversity of candidate pools.

To support faculty growth and student success, the College will participate in the University's joint hire program. When appropriate, faculty members will have opportunities to hold a major appointment in a department in the College of Engineering with a minor appointment in an interdisciplinary studies program such as African-American Studies, Latin American and Latino/a Studies, Entrepreneurship Studies, or Water Sustainability Studies. This joint hire approach fosters cross-disciplinary research and supports retention of diverse faculty, staff, and students.

In addition, College of Engineering faculty will participate in a variety of faculty development programs designed to help them create inclusive classroom environments that facilitate more equitable and inclusive learning opportunities for students. These include the Framework for Inclusive Teaching Excellence to guide instructors with methods to integrate diversity, equity, and inclusion into their professional development goals; microaggression workshops; and other resources for high-impact practices for instruction and assessment. Faculty will also have access to a mentoring network to pair them with senior scholars in related disciplines.

Fiscal and Personnel Resources

1050.30(a)(5): A) The financial commitments to support the unit of instruction, research or public service are sufficient to ensure that the faculty and staff and support services necessary to offer the unit of instruction, research or public service can be acquired and maintained. B) Projections of revenues necessary to support the unit of instruction, research or public service are based on supportable estimates of state appropriations, local tax support, student tuition and fees, private gifts, and/or governmental grants and contracts.

The funding, staffing, space, and equipment for the College of Engineering will come from the University's institutional operating funds. The estimated total capital project cost of \$44 million will cover building renovation costs, program laboratory equipment, and the renovation or addition of teaching labs in other existing University programs and administrative office space. The University is planning to issue a 30-year tax exempt debt to cover these initial capital costs. In addition, \$5 to \$8 million will be funded by the University's Central Reserves to permanently relocate campus facility personnel and operations currently housed in the John Green building.

For the new College of Engineering program to get started, there are several operating expenditures that will occur prior to any revenue generated by student tuition and fees. The main costs are for key personnel supporting academic administration, faculty, and program support staff. These program startup costs are projected to be approximately \$1.2 million for the first two years prior to the arrival of students. By the fourth year of the program, with steady enrollment of about 520 engineering students, the net positive operating contribution margin, prior to covering debt payments, is estimated to be \$1.7 million per year, which includes academic personnel projections

reflecting a total of 40 faculty, staff, and administrators at an estimated annual cost of \$3.9 million. Based on the projections provided and the review of the fiscal model, the University has adequate plans for staff planning and other instructional resources to administer the proposed new units of administration.

Accreditation and Licensure

1050.30(b)(3)[applicable only to units of instruction]: Appropriate steps shall be taken to assure that professional accreditation needed for licensure or entry into a profession as specified in the objectives of the unit of instruction is maintained or will be granted in a reasonable period of time.

The College of Engineering will seek Accreditation Board for Engineering and Technology (ABET) accreditation for the general, electrical, and mechanical engineering programs. The University has three existing programs accredited by ABET:

- Bachelor of Science in Information Systems
- Bachelor of Science in Computer Science.
- Bachelor of Science in Occupational Safety and Health.

In addition to seeking ABET accreditation and the goal related to equitable student success, the College also plans to earn diversity recognition from the American Society for Engineering Education (ASEE). ASEE identifies 15 Proven Policies and Practices as best practices relative to recruitment, retention, climate, and culture for diversity in engineering education.

Program Information

1050.30(b)(2)[applicable only to units of instruction]: A) The information which the institution provides for students and the public shall include the following: i) An accurate description of the unit of instruction, including its objectives, length, and residency requirements if any; ii) Schedule of tuition, fees, and all other charges and expenses necessary for completion of the unit of instruction, cancellation and refund policies; iii) Student rights and responsibilities; iv) A statement regarding the transferability of college credits, including the fact that the decision to accept transfer credits is determined by the receiving institutions; v) A statement as to how the institution will advise students on the nature of the transfer process, including the importance of consulting with institutions to which the student may seek to transfer; vi) Evidence of arrangements for the transfer of courses or credits or both to institutional counterparts, when these arrangements exist; these arrangements are also known as articulation agreements; vii) A statement of the institution's most recent graduation rates and the number of graduates and enrollments as provided by the institution to the Integrated Postsecondary Education Data System (IPEDS) and any submission of data to satisfy Board reporting requirements; and viii) Other material facts concerning the institution and the unit of instruction as are likely to affect the decision of the student to enroll. B) The information listed in subsection (b)(2)(A) shall be available to prospective students prior to enrollment and shall be included in the institution's catalog of programs.

Detailed information about the College and Departments will be published on the University's website.

Staff Conclusion

The staff concludes that the College of Engineering, Department of Electrical Engineering, and the Department of Mechanical Engineering proposed by Illinois State University meet the criteria to implement the Board of Higher Education Act (110 ILCS 205/et.seq.) as set forth in 23

Illinois Administrative Code, Ch. II, Section 1050.30, and the Illinois Board of Higher Education policies pertaining to assessment and accreditation or licensure. The staff concludes that the proposal, with its emphasis on equity, aligns with the higher education strategic plan, “A Thriving Illinois: Higher Education Paths to Equity, Sustainability and Growth.”