



K-State 2025 Strategic Action and Alignment Plan

College or Major Unit: College of Engineering

Department: Electrical and Computer Engineering

1. What are your Department’s mission and vision and how does your organization contribute to achieving the University’s and your College’s/Major Unit’s vision for K-State 2025?

Department of Electrical and Computer Engineering Mission Statement:

The KSU ECE Department will

- provide ECE undergraduate and graduate students with the best possible education to prepare them for a professional career in electrical or computer engineering within the guidelines provided by ABET,
- foster an environment which instills a sensitivity to the social/humanistic implications of technology and motivates students and faculty to make worthwhile contributions to the profession and to society while upholding the highest ethical standards,
- promote the resources and atmosphere to create new knowledge through scholarly research and thereby foster faculty development, enhance education, and contribute to regional economic development, and
- cultivate an effective outreach program that emphasizes leadership in professional societies and encourages the creation of distance education courses.

2. What are your Department’s key strategic activities and outcomes?

3. Identify [in brackets] which of your Department’s strategic outcomes are directly linked to your College’s/Major Unit’s outcomes. (If your Department or similar unit is not in a College or Major Unit, skip this question.)

Key Activities	Short Term (2013 - 2015) Key Outcomes	Intermediate (2016 - 2020) Key Outcomes	Long Term (2021 - 2025) Key Outcomes
<i>What we plan to do...</i>	<i>What we expect to happen...</i>	<i>What we expect to happen...</i>	<i>What we expect to happen...</i>
Students: Maintain and grow a highly motivated, highly qualified, diverse student body at both the undergraduate and graduate levels. Enhance the learning environment to motivate and retain students. Activities: 1. Support the college recruitment, retention and scholarship programs. 2. Enhance student recruitment material for ECE students, including social media approaches. 3. Encourage student participation in	A. Increase the 5-year avg of undergraduate enrollment from 387 to 435 (4% per year)[ENT1B]	A. Increase the 5-year avg of undergraduate enrollment to 530 (4% per year) [ENT1B]	A. Increase the 5-year avg of undergraduate enrollment to 644 (4% per year) [ENT1B]
	B. Improve freshmen-to-sophomore department retention rate from 59% to 61% [ENT1G, ENT2A]	B. Improve freshmen-to-sophomore retention rate from 61% to 64% [ENT1G, ENT2A]	B. Improve freshmen-to-sophomore retention rate from 64% to 67% [ENT1G, ENT2A]
	C. Increase 6-year graduation of CpE students from 38% to 40%, and EE students from 53% to 55% [ENT1F]	C. Increase 6-year graduation of CpE students from 40% to 45%, and EE students from 55% to 57% [ENT1F]	C. Increase 6-year graduation of CpE students from 45% to 49%, and EE students from 57% to 60% [ENT1F]
	D. Increase the 5-year avg of PhD graduates from 3.2 to 4.0 (8% per year)[ENT1J]	D. Increase the 5-year avg of PhD graduates to 5.9 (8% per year) [ENT1J]	D. Increase the 5-year avg of PhD graduates to 8.7 (8% per year) [ENT1J]

<p>professional organizations, honor societies, conferences, international experiences, and competitive teams.</p> <ol style="list-style-type: none"> 4. Develop a student organization for Women in Electrical and Computer Engineering. 5. Have all prospective students meet with faculty or the ECE advisor. 6. Involve current students and alumni in the undergraduate recruitment process. 7. Encourage faculty participation in workshops and conferences that deal with enhancing the learning environment. 8. Develop awards for outstanding undergraduate student accomplishments and leadership in addition to the existing awards for graduate students. 9. Increase fellowships for recruiting and retaining qualified PhD students. 10. Explore a graduate program in Electrical and Computer Engineering, not just Electrical Engineering. 11. Develop a graduate program in engineering education in collaboration with the College of Education. 	<p>E. Increase in number of department and/or college funded assistantships/scholarships for PhD from \$48K to \$55.6K per year [ENT3F]</p>	<p>E. Increase in number of department and/or college funded assistantships/scholarships for PhD \$71K per year [ENT3F]</p>	<p>E. Increase in number of department and/or college funded assistantships/scholarships for PhD to \$90K per year [ENT3F]</p>
<p>Research: Maintain and grow a research program that includes undergraduate and graduate students.</p> <p>Activities:</p> <ol style="list-style-type: none"> 12. Increase the number of tenured/tenure-track faculty 13. Develop strategic research relationships with appropriate industrial firms and government agencies. 	<p>F. Improvements in classroom infrastructure and facilities with new addition, an additional 2300sf for ECE [ENT2E]</p>	<p>F. Improvements in classroom infrastructure and facilities with new addition [ENT2E]</p>	<p>F. Improvements in classroom infrastructure and facilities with new addition [ENT2E]</p>
	<p>G. Increase number of scholarly publications in journals and conferences from 86 to 92 [ENT3A]</p>	<p>G. Increase number of scholarly publications in journals and conferences from 92 to 105 [ENT3A]</p>	<p>G. Increase number of scholarly publications in journals and conferences from 105 to 120 [ENT3A]</p>
	<p>H. Increase 3-year average of annual research expenditures from \$1571K to \$1819K [ENT3E]</p>	<p>H. Increase 3-year average of annual research expenditures to \$2321K [ENT3E]</p>	<p>H. Increase 3-year average of annual research expenditures to \$3000K [ENT3E]</p>
	<p>I. Increase number of undergraduate students involved and supported in research from 13 to 15 [ENT3I]</p>	<p>I. Increase number of undergraduate students involved and supported in research to 20 [ENT3I]</p>	<p>I. Increase number of undergraduate students involved and supported in research to 25 [ENT3I]</p>

<p>14. Encourage formation of “research groups” within the department and with faculty from other departments</p> <p>15. Foster greater research productivity by providing a reduced teaching load and financial incentives (e.g., returning portion of SRO) for research productive faculty</p> <p>16. Provide adequate travel funds to attend conferences and visit research sponsors.</p>	<p>J. Increase number of faculty participating in international scholarly activities and travel from 8 to 9 [ENT5B]</p>	<p>J. Increase number of faculty participating in international scholarly activities and travel to 10 [ENT5B]</p>	<p>J. Increase number of faculty participating in international scholarly activities and travel to 12 [ENT5B]</p>
<p>Resources: Grow financial, personnel, building, and equipment resources necessary to support continued ECE Department excellence</p> <p>Activities:</p> <p>17. Increase department involvement in annual fund raising and in working with donor candidates.</p> <p>18. Increase the number of newsletters produced from 1 per year to 4 per year by introducing quarterly electronic newsletters.</p> <p>19. Begin an annual ECE recognitions banquet w/ alumni, faculty, staff, and students.</p>	<p>K. Increase annual philanthropic gift totals from \$116K to \$134K [ENT4A]</p>	<p>K. Increase annual philanthropic gift totals to \$171K [ENT4A]</p>	<p>K. Increase annual philanthropic gift totals to \$219K [ENT4A]</p>
	<p>L. Increase number of endowed chairs and professorships from 4 to 5 [ENT3C, ENT4B]</p>	<p>L. Increase number of endowed chairs and professorships to 6 [ENT3C, ENT4B]</p>	<p>L. Increase number of endowed chairs and professorships to 8 [ENT3C, ENT4B]</p>

4a. What resources and/or opportunities exist for your Department to achieve its vision and outcomes?

The greatest resources the department has is its faculty, staff, students, and alumni. There are always opportunities to better engage these resources to accomplish its mission and the above outcomes. Specifically, the following opportunities are noted:

- a. Restructure faculty teaching and research appointments to provide more research time to research intensive faculty and greater teaching loads to faculty with excellence in instruction.
- b. Identify and develop key faculty to lead larger research and educational activities that involve larger groups across the college and university.
- c. Utilize current students more in both recruitment and retention activities for the department.
- d. Provide the staff with the tools and efficiencies to better serve both faculty and students.
- e. Utilize alumni more in student recruitment and development efforts.

- 4b. What resources and/or opportunities are needed for your Department to achieve its vision and outcomes?
- a. At least two faculty positions from the UEIA.
 - b. Another staff member to support departmental communications, recruitment, and research activities.
 - c. A significantly greater amount of physical space for the growing number of faculty, staff, and students.
 - d. A dedicated share of a development officer to work specifically on department priorities.
 - e. A larger pool of soft-funding resources to grow the department as it continues to rely more on soft funding.
5. How do you propose to acquire the resources needed for your Department to accomplish its vision and outcomes?
- a. Work with the college and other departments on a fair allocation of UEIA resources.
 - b. Seek college support for new positions and the return of full position lines to the department with leveraged soft support from the department to create more positions.
 - c. Develop a comprehensive department plan and policies for retaining and returning soft resources such as SRO and Continuing Education income so faculty are encouraged to increase productivity while also increasing department revenue.
 - d. Create strategic initiatives that align with funding opportunities provided by central administration.
 - e. Become more fiscally transparent as a department, college, and university on resource allocations, including state funding, SRO distributions, KSU Foundation, scholarship, and tuition dollars.
6. How does your plan link to the K-State 2025 University Benchmark Metrics, Common Elements, and Thematic Goals, Outcomes, and Metrics?
(See *below*)

6. Departmental Links to K-State 2025 University Benchmark Metrics, Common Elements, and Thematic Goals, Outcomes, and Metrics

Links to Benchmark Metrics
B-1 - Total research and development expenditures B-2 - Endowment pool B-5 - Number of doctorates granted annually B-6 - Freshman-to-sophomore retention rate B-7 - Six-year graduation rate B-8 - Percent of undergraduate students involved in research

Links to Common Elements
CE-1 - Communications and Marketing CE-2 - Culture CE-3 - Diversity CE-4 - External Constituents CE-5 - Funding CE-6 - International CE-7 - Sustainability CE-8 - Technology

Links to University Thematic Goals, Outcomes, and Metrics			
Links to 2025 Thematic Goals and Metrics	Links to Short Term Outcomes (2011 – 2015)	Links to Intermediate Outcomes (2016 – 2020)	Links to Long Term Outcomes (2021 – 2025)
<p>T1 - Research, Scholarly and Creative Activities, and Discovery (RSCAD)</p> <p>Theme 1 Metrics:</p> <p>T1-2 - Total sponsored extramural funding expenditures</p> <p>T1-4 - # of refereed scholarly publications per academic year and allocated faculty member</p>	<p>T1-A - Increased intellectual and financial capital to support RSCAD</p> <p>T1-B - More clusters/centers of collaborative RSCAD focus</p> <p>T1-C - Increased funding for investigator-based research, research centers, and graduate training grants</p> <p>T1-E - Competitive compensation and support available to GRAs, GTAs, and GAs</p> <p>T1-F - Enhanced and systematic approach for UG research</p> <p>T1-G - Successful recruitment, retention, evaluation, compensation, and rewards strategies in place to support RSCAD needs</p> <p>T1-H - Enhanced visibility and appreciation for research, discovery, and scholarly and creative activities</p>	<p>T1-I - Intellectual and financial capital in place for expanded RSCAD efforts</p> <p>T1-J - Greater proportion of nationally and internationally recognized award-winning faculty in RSCAD programs</p> <p>T1-M - Increased participation by undergraduates in expanded opportunities in research</p>	

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<p>T2 - Undergraduate Educational Experience (UEE)</p> <p>Theme 2 Metrics:</p> <p>T2-2 - # and % of undergraduate students completing an experiential learning experience</p> <p>T2-3 - Total funding awarded for undergraduate scholarship support</p> <p>T2-6 - % of undergraduate enrollment by demographic group</p>	<p>T2-A - Excellent, customized academic advising and services available to all students to support their success and degree completion</p> <p>T2-B - Engaged students benefitting from high impact educational practices used by excellent faculty and staff across the university</p> <p>T2-C - Increased participation by undergraduates in expanded opportunities for meaningful research</p> <p>T2-E - Effective evaluation practices that recognize and reward teaching, advising, and life-long learning/professional development</p> <p>T2-G - Successful recruitment and retention strategies that address our entire student population</p> <p>T2-H - Improved six-year graduation rates and retention ratios</p>	<p>T2-K - Superior and diverse faculty recognized for teaching excellence</p> <p>T2-M - Increased undergraduate contributions in the creation of scholarship through research</p> <p>T2-N - Ongoing improvement of six-year graduation rates and retention ratios</p>	<p>T2-Q - Freshman to Sophomore retention ratios comparable to benchmark institutions</p> <p>T2-R - Six-Year graduation rates comparable to benchmark institutions</p>
<p>T3 - Graduate Scholarly Experience</p> <p>Theme 3 Metrics:</p> <p>T3-1 - # and % of graduate students with assistantships, endowed scholarships, and fellowships</p> <p>T3-2 - Total funds awarded for graduate assistantships, endowed scholarships, and fellowships</p> <p>T3-6 - # of graduate terminal degrees awarded</p> <p>T3-7 - Total graduate students enrolled by demographic group and</p>	<p>T3-A - Competitive compensation and support available for GRAs, GTAs, and GAs</p> <p>T3-D - Outstanding mentoring for our graduate students</p> <p>T3-E - Expectation of excellence for the graduate scholarly experience</p> <p>T3-F - Increased capacity to secure funding for graduate research and teaching</p> <p>T3-H - Expanded partnerships with</p>	<p>T3-I - Increased participation by our graduate students in unique high level learning and experiential training</p> <p>T3-J - Expanded reputation for outstanding graduates with the critical skill sets needed to excel in their careers in a global environment</p> <p>T3-K - Increased funding for graduate research and teaching</p> <p>T3-L - Increased number of nationally and internationally recognized award-winning graduate faculty</p>	<p>T3-P - Stable funding for graduate research and teaching competitive with benchmark institutions</p> <p>T3-Q - Doctorates Awarded comparable with benchmark institutions</p>

Links to University Thematic Goals, Outcomes, and Metrics			
Links to 2025 Thematic Goals and Metrics	Links to Short Term Outcomes (2011 – 2015)	Links to Intermediate Outcomes (2016 – 2020)	Links to Long Term Outcomes (2021 – 2025)
degree type	industry and government to provide high level learning and experiential training opportunities for graduate students	T3-M - Increased number of Doctorates Awarded	
T4 - Engagement, Extension, Outreach and Service	T4-E - Increased extramural funding for Engagement initiatives at the local, state, national, and international level T4-F - Recognition as leaders in Engagement within our state and nation	T4-J - Increased number of graduate students involved in Engagement	
T5 - Faculty and Staff Theme 5 Metrics: T5-2 - # and % of faculty with endowed chairs, professorships, and fellowships T5-3 - Competitive compensation packages for faculty and staff T5-4 - # and % of faculty and staff participating in international experiences T5-5 - % of tenure/tenure-track faculty by demographic group	T5-A - Total compensation competitive with aspirant university and regional employers for faculty and staff in high priority areas T5-C - Career-long learning recognized by the university and its employees as a shared value and responsibility T5-D - Effective evaluation processes that result in accountable faculty and staff with a clear understanding of their job expectations and how they contribute to the University's mission	T5-E - Total compensation competitive with aspirant university and regional employers for all employees T5-F - Faculty and staff current with developments in their fields and the skills needed to achieve excellence in performing their jobs	T5-H - Talented and high performing, diverse workforce recognized for excellence and award-winning faculty and researchers T5-I - Stable funding available for recruitment and retention of top level faculty and staff T5-J - Optimal number of faculty and staff comparable with our benchmark institutions
T6 - Facilities and Infrastructure	T6-B - Adequate temporary space to house programs and staff impacted by renovations of existing facilities T6-C - Robust and reliable information technology ensuring business continuity and consistent with the achievement of the highest quality levels of support for research, instruction, student services, and administration	T6-D - Adequate office space for all K-State employees equipped to support their work and productivity	T6-G - High quality, technology enabled, flexible and adaptable classroom space appropriate to the evolving needs of the learning environment and readily available to K-State faculty and students T6-H - High-quality research laboratories and specialty spaces that enhance research and scholarly activities

Links to University Thematic Goals, Outcomes, and Metrics			
Links to 2025 Thematic Goals and Metrics	Links to Short Term Outcomes (2011 – 2015)	Links to Intermediate Outcomes (2016 – 2020)	Links to Long Term Outcomes (2021 – 2025)
			<p>T6-I - Well-maintained buildings, utilities, IT infrastructure, and grounds consistent with the expectations and image of a highly ranked land grant research and teaching institution</p> <p>T6-K - Signature facilities that promote collaborative learning and working environments, multidisciplinary work, and integrated interaction between students, faculty, researchers, staff, and administrators</p>