



K-State 2025 Strategic Action and Alignment Plan

College or Major Unit: College of Engineering

Department: Civil 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?

Our Vision

We will be recognized nationally among highly ranked civil engineering programs through our pursuit of excellence in teaching, research, and service activities.

Our Mission

The mission of Kansas State University's Department of Civil Engineering is to provide:

- excellence in classroom instruction and an educational environment that prepares students for a professional career in civil engineering;
- enrichment of the academic and professional experience of civil engineering students and faculty;
- outreach to the engineering community; and
- advancements in civil infrastructure development and preservation.

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.)

Theme 1: Undergraduate Educational Experience. Empower civil engineering graduates to pursue technical solutions in a global workplace that improves the quality of life.			
Key Activities [KA]	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>
Empowering civil engineering graduates to pursue technical solutions in a global workplace that improves the quality of life, we plan to: 1. Continue long-standing ABET accredited program, 2. Incorporate strengths of Amer. Soc. of Civil Eng. (ASCE) Civil Engg. Body of Knowledge (BOK) for the 21 st Century –	A. Continue to meet all established metrics we have in place to ensure graduates are equipped to enter profession as Intern Engineer. B. Determine what changes need to be implemented to pursue strengths of ASCE-BOK. C. Have freshmen-to-sophomore retention rate greater than 70% of students with GPA of 2.5 or higher [ENT1G]	A. Continue to meet all established metrics we have in place to ensure graduates are equipped to enter profession as Intern Engineer. B. Begin to implement changes related to strengths of ASCE-BOK. C. Have freshmen-to-sophomore retention rate of high-achieving students greater than 72% [ENT1G]	A. Continue to meet all established metrics we have in place to ensure graduates are equipped to enter profession as Intern Engineer. B. Full implementation of ASCE-BOK strengths. C. Have freshmen-to-sophomore retention rate of high-achieving students greater than 74% [ENT1G]

Preparing the Civil Engineer of the Future, 2 nd Edition, into our program), main thrust is BS+30 will become the educational requirement to enter profession, 3. Strengthen programs to improve retention of students with GPA of 2.5 or higher (i.e., CE 101, CE015, mentoring program, enhance ASCE and XE).	D. Develop plans to encourage undergraduate students to have research experience [ENT1H]	D. Have greater than six undergraduate students have research experience [ENT1H]	D. Have greater than 10 undergraduate students have research experience [ENT1H]
	E. Actively participate in college efforts to increase enrollment, diversity and number of graduates [ENT1A-H]	E. Support college efforts to increase enrollment, diversity and number of graduates [ENT1A-H]	E. Support college efforts to increase enrollment, diversity and number of graduates [ENT1A-H]
			F. Increased reputation and ranking of undergraduate program

Theme 2: Graduate Educational Experience. Provide the world with civil engineers with post-baccalaureate training who will be the leaders, educators and innovators for the 21st century.

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>
<p>In order to provide post-baccalaureate training to the civil engineers who will be the leaders, educators and innovators for the 21st century, we plan to:</p> <p>1. Enhance GRA stipends to make our graduate program more attractive to qualified graduate students,</p> <p>2. Provide full tuition remission for Ph.D. students,</p> <p>3. Embrace the vision of the American Society of Civil Engineers (ASCE) Civil Engineering Body of Knowledge (BOK) for the 21st Century – Preparing the Civil Engineer of the Future, 2nd Edition in our graduate program in the form of integrated BS-MS degree in Civil Engineering),</p> <p>4. Maintain excellence in on-campus</p>	A. Increase Ph.D. graduation 3 per year to 5 per year [ENT1J]	A. Increase Ph.D. graduation to 6 per year [ENT1J]	A. A. Increase Ph.D. graduation 7 per year [ENT1J]
	B. Increase Ph.D. enrollment from 12 to 15 [ENT1I]	B. Increase Ph.D. enrollment to 18 [ENT1I]	B. Increase Ph.D. enrollment to 25 [ENT1I]
	C. Seek avenues to fund fellowships to attract highly qualified Ph.D. students	C. Establish fellowships to attract highly qualified Ph.D. students.]	C. Continue to work on increasing the number of fellowships]
	D. Seek approval for the BS/MS program	D. Upon approval, produce at least 5 BS/MS graduates for the next 5 years	D. Implement changes to reach ASCE-BOK vision of M/30.
	E. Seek approval and make necessary preparations for admitting distance education students who would be in the research option (report/thesis/dissertation)	E. Recruit 2 distance students per year who would be in the research option (report/thesis/dissertation)	E. Continue to recruit distance students per year who would be in the research option (report/thesis/dissertation)
	F. Recruit 1 graduate student (domestic or international) with scholarship per year.	F. Continue to recruit graduate students (domestic or international) with scholarship	F. Continue to recruit graduate students (domestic or international) with scholarship
	[G. Provide travel support from departmental resources for at least 2 graduate student per year to attend professional committee meetings, etc.	G. Seek avenues to provide tuition remission to all GRA's	G. Provide tuition remission to all GRA's and GTA's

<p>graduate education (both masters and doctoral) and enhance distance education graduate course offerings and outreach,</p> <p>5. Enhance efforts to recruit graduate students with scholarships from different funding agencies, such as, NSF or for international students, their own governments,</p> <p>6. Ensure development of graduate civil engineering students who will be leaders, educators, and innovators.</p>	<p>H. Implement a "GTA of the Year" Award</p>		<p>H. Highly ranked graduate program</p>
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Theme 3: Research Program. Establish focused, high-impact, nationally recognized research programs that will enhance the department's national and international reputation.

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>
1. Solidify thematic research areas within civil engineering discipline that bring national and international recognition	A. Increase number of scholarly publications in highly-ranked journals and conferences from 65 to 72 per year [ENT3A]	A. Increase number of scholarly publications to 79 per year [ENT3A]	A. Increase number of scholarly publications to 86 per year [ENT3A]
2. Maintain a diverse faculty	B. Increase number of endowed chairs and professorships from 3 to 4 [ENT3C]	B. Increase number of endowed chairs and professorships to 6 [ENT3C]	B. Increase number of endowed chairs and professorships so that every full professor has one. [ENT3C]
3. Establish coordinated efforts for faculty to gain national honors and to contribute national service to government agencies and professional societies.	C. Increase graduate student enrollment from 71 to 90 and number of Ph.D. students from 12 to 15 and Ph.D. graduates from 3 per year to 5 per year [ENT3D]	C. Increase graduate student enrollment to 116 and number of Ph.D. students to 18 and Ph.D. graduates to 6 per year [ENT3D]	C. Increase graduate student enrollment to 146 students, and number of Ph.D. students to 25 and Ph.D. graduates to 7 per year. [ENT3D]
4. Provide opportunities for undergraduate research	D. Increase research expenditures from \$2.3M to \$2.7M [ENT3E]	D. Increase research expenditures to \$3.7M annually [ENT3E]	D. Increase research expenditure to \$4.6 million annually. [ENT3D]
5. Coordinate graduate student recruitment and hiring	E. Establish standard procedure to nominate faculty members for national research awards.	E. A minimum of 1 faculty member per year nominated for a national research award.	E. A minimum of 2 faculty members per year nominated for a national research award.
6. Define and pursue high-impact research areas	F. Identify and highlight the high-impact areas that are already part of our research programs	F. Identify strategic opportunities to partner other civil engineering faculty and faculty in other disciplines	F. Hire new faculty whose research strengths align with targeted opportunities and research strength areas
7. Increase research Space & Equipment and Lab Staff		G. Build new full-scale structures research laboratory and Identify temporary available research space outside of Fiedler Hall	G. Acquire additional research facilities that support growing research areas; expand existing CISL Building

Theme 4: Institutional and Professional Leadership. Serve the university community by providing professional guidance and leadership; and provide CE expertise to resolve societal civil infrastructure problems.

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>
1. Faculty winning important research and teaching awards; Recognized for professional contributions and leadership in solving societal civil infrastructure problems	A. Increase in number of national recognition and awards (develop nomination process) [ENT1J]	A. Continued increase in number of national recognition and awards (1 nomination) [ENT1J]; Greater proportion of nationally and internationally recognized award-winning faculty [ENT2B]	IA. Increase in number of national recognition awards (2 nominations) [ENT1J]; Nationally recognized K-State researchers, a high proportion of which are members of their national academies [ENT2B]
2. Recognition of the CE faculty by university peers as a highly engaged faculty; Faculty involved in consulting/ professional service; editorial boards and manuscript/proposal review	B. Increased recognition of our services as a source of expertise, information, and tools for disciplines worldwide [ENT5B]	B. Exposure on a national level as a leader/partner engaged in significant social, political, health, economic, and environmental issues [ENT5B]	B. National recognized as a leader in and model for a reinvented and transformed land-grant university integrating research, education, and engagement [ENT5B]
3. Faculty presenting important national/international conference and invited presentations	C. Increase number of faculty participating in international scholarly activities and travel to 6 [ENT5B]	C. Increase faculty involvement in international scholarly activities to 7 [ENT5B]	C. Increase number of faculty with international experience to 9 [ENT5B]
4. Faculty actively serving on prominent national/international committee and professional society	D. Recognized as leaders in Engagement within our state and nation [ENT6B]	D. Increased capacity to respond to emergencies worldwide [ENT6B]	D. Nationally and internationally recognized as leaders in Engagement on a global scale [ENT6B]
5. Faculty serving important department/college/university committees	E. Increased number and diversity of faculty and staff participating in Engagement [ENT6B]	E. Increased appreciation by K-State graduates for lifelong involvement in engagement and service [ENT6B]	E. Nationally and internationally recognized as leaders in Engagement on a global scale [ENT6B]
6. Faculty engaged in activities that support continued ABET accreditation	F. Faculty maintain high level of professional licensure and documentation of ABET outcomes [NONE]	F. Faculty maintain high level of professional licensure and documentation of ABET outcomes [NONE]	F. Faculty maintain high level of professional licensure and documentation of ABET outcomes [NONE]

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

For Theme 1:

The CE Department's undergraduate enrollment is the largest its ever been (over 300) and the CE Departmental faculty are fewer than when there were 125 students. A dedicated and hard-working faculty and staff continues to maintain the quality of our program. There are numerous resources available regarding the ASCE Body of Knowledge recommendations (ASCE Raise the Bar, CAP3, BOK2). There are also a number of civil engineering programs that have been pursuing this educational model for several years (Iowa State Univ., Univ. Oklahoma, Rose-Hulman Institute of Tech., Case Western Reserve Univ., Colorado State Univ., Univ. Louisville).

For Theme 2:

The major resource that the Department of Civil Engineering has is its dedicated faculty and staff and excellent laboratory infrastructure. Also, the University Transportation Center. The Department can draw from the following resources of the College of Engineering to help achieve its outcomes:

- Allocated resources from the Dean of Engineering

- Development
- Office of Engineering Research and Graduate Programs

For Theme 3:

University Transportation Center, Relatively New Research Facilities (Fiedler Hall opened 2000)

For Theme 4:

- Department provides travel support
- Department provides 2 membership dues for professional societies
- Department provides funds for professional licensure
- PSRO funds used for faculty professional development
- CE advisory committee and alumni available for guidance
- Exiting pool of faculty awards in education, research, and service

4b. What resources and/or opportunities are needed for your Department to achieve its vision and outcomes?

For Theme 1:

Six additional faculty (from 14 to 20).

Three additional staff (office, advisors, instructors, technicians) (from 6 to 9).

Increase GTAs to eight (currently about two).

Doubling of classroom, office, and research space.

For Theme 2:

To achieve the goals, the Department will need the following resources:

- Additional six faculty lines
- Incentives to recruit and retain high-performing faculty including compensation packages, 2 endowed chairs/professorships, and competitive startup packages
- State and Foundation funds for graduate student tuition waivers and stipends and doctoral fellowships
- Additional laboratory spaces

For Theme 3:

Tuition waivers for all full-time graduate students on GRA's, Additional lab space to coincide with increased research especially a full-scale structures lab. Ability for faculty to improve their compensation, commensurate with their extramural research funding.

For Theme 4:

- College and University enhancing co-funding of international travel
- University resources to provide release for journal editorial services and other national/international services
- University maintains revenue streams to departments and faculty members to support professional development
- Funding for additional ABET training activities and support of ABET activities
- Additional resources to support sabbatical leaves and fellowships
- Additional revenue to support endowed chairs
- Active involvement of faculty in nomination process

5. How do you propose to acquire the resources needed for your Department to accomplish its vision and outcomes?

For Theme 1:

Be as successful as we can with current limitations.

Support college and university efforts to secure additional resources.

For Theme 2:

We plan to acquire the resources as follows:

- **Request College of Engineering (COE) for additional faculty and instructor lines**
- **Request College of Engineering (COE) for more laboratory space, faculty and graduate student officers, improvements in facilities and research infrastructure**
- **Pursue development opportunities to raise funds for doctoral fellowships and endowed positions**
- **Pursue grant opportunities to create a stable funding base for graduate students**
- **Leverage UEIA funds to improve laboratory facilities**
- **Promote and coordinate Multi-PI proposals.**
- **Increase industry involvement.**

For Theme 3:

Coordinate graduate student recruitment and hiring, Increase industry involvement, Promote and coordinate multi-PI proposals.

For Theme 4:

- **University and college maintain and enhance current revenue streams to support faculty professional development (greater indirect cost recovery)**
- **The list of activities articulated in this category for Theme 2 will also acquire necessary resources**
- **University providing funds to reward department head and faculty members who are engaged in revenue enhancements for the department**
- **Leverage UEIA (University Engineering Initiatives Act) funds for professional development**
- **Industry funding to support professional development and faculty awards**

**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-4 - Number of faculty awards B-5 - Number of doctorates granted annually B-6 - Freshman-to-sophomore retention rate B-8 - Percent of undergraduate students involved in research

Links to Common Elements
CE-3 - Diversity CE-5 - Funding CE-6 - International CE-7 - Sustainability

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>T1-5 - Total international research and development expenditures</p>	<p>T1-C - Increased funding for investigator-based research, research centers, and graduate training grants</p> <p>T1-D - Tuition waivers for all GRAs</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-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>	<p>T1-N - Fifty nationally recognized K-State researchers, a high proportion of which are members of their national academies</p> <p>T1-O - Extramural funding competitive with our benchmark institutions</p> <p>T1-Q - Competitive amongst our peers in the percentage of undergraduates involved in research</p>
<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>T2-6 - % of undergraduate enrollment by demographic group</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-F - Effective system in place that supports and promotes teaching</p>	<p>T2-J - Excellent reputation for high quality teaching and advising that prepares students for their professional, community, social, and personal lives</p> <p>T2-K - Superior and diverse faculty recognized for teaching excellence</p> <p>T2-N - Ongoing improvement of six-year graduation rates and retention ratios</p>	<p>T2-O - An undergraduate educational experience recognized as one of the best among the nation's Top 50 Public Research Universities</p> <p>T2-P - Faculty teaching and advising awards comparable to our benchmark institutions</p> <p>T2-Q - Freshman to Sophomore retention ratios comparable to</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)
	<p>excellence</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>		benchmark institutions
<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>T3-3 - # and % of graduate programs offering competitive compensation and support packages</p> <p>T3-6 - # of graduate terminal degrees awarded</p> <p>T3-7 - Total graduate students enrolled by demographic group and degree type</p>	<p>T3-A - Competitive compensation and support available for GRAs, GTAs, and GAs</p> <p>T3-B - Tuition waivers for all GRAs</p> <p>T3-F - Increased capacity to secure funding for graduate research and teaching</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-M - Increased number of Doctorates Awarded</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>
<p>T4 - Engagement, Extension, Outreach and Service</p> <p>Theme 4 Metrics:</p> <p>T4-1 - # and % of undergraduate students participating in engagement/service learning</p>	<p>T4-B - Increased participation by undergraduates in expanded opportunities for meaningful Engagement experiences</p> <p>T4-D - Increased numbers and diversity of faculty and staff participating in Engagement</p> <p>T4-F - Recognition as leaders in Engagement within our state and nation</p>	<p>T4-J - Increased number of graduate students involved in Engagement</p>	<p>T4-O - Nationally and internationally recognized as leaders in Engagement on a global scale</p> <p>T4-P - Recognized as a leader in Engagement reaching both rural and urban communities</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)
<p>T5 - Faculty and Staff</p> <p>Theme 5 Metrics:</p> <p>T5-1 - # of national and international faculty awards</p> <p>T5-4 - # and % of faculty and staff participating in international experiences</p>	<p>T5-A - Total compensation competitive with aspirant university and regional employers for faculty and staff in high priority areas</p>	<p>T5-E - Total compensation competitive with aspirant university and regional employers for all employees</p> <p>T5-G - Successful recruitment and retention of a talented and high performing, diverse workforce</p>	<p>T5-H - Talented and high performing, diverse workforce recognized for excellence and award-winning faculty and researchers</p>
<p>T6 - Facilities and Infrastructure</p>			<p>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</p> <p>T6-H - High-quality research laboratories and specialty spaces that enhance research and scholarly activities</p>