ECE 2025

Strategic Plan
for
The Klipsch School of
Electrical and Computer Engineering

The ECE 2025 strategic plan identifies critical activities essential for moving the Klipsch School of Electrical and Computer Engineering forward to support the goals described in the *New Mexico State University College of Engineering 2025 Strategic Roadmap* and the *New Mexico State University LEADS 2025*. The ECE 2025 document also outlines the performance areas against which faculty and staff will be evaluated.

Mission

Mission: The mission of the Klipsch School of Electrical and Computer Engineering is to provide bold academic programs, conduct research, and participate in outreach activities that help the diverse population of New Mexico shape the future. These activities support NMSU's land-grant and space-grant missions while embracing our Hispanic Serving Institution designation.

Vision

The vision of the Klipsch School of Electrical and Computer Engineering is to become the undergraduate electrical and computer engineering department of choice in the State of New Mexico and to be known for the high level of social mobility enjoyed by graduates of the program. The School will strive to be recognized as a top research and engineering graduate program in the nation.

Diversity

Diversity in Science, Technology, Engineering, and Mathematics leads to increased creativity, innovation, and better problem-solving. The Klipsch School of Electrical and Computer Engineering supports diversity and inclusion that will expand and enhance the talent pool and drive long-term economic growth.

Values

***E**xcellence:* Provide excellent academic programs that prepare our students to excel in the workforce or graduate school. Strive for

excellence in research that helps to shape the future.

***C**ommitment:* Faculty and staff have a deep commitment to serving the needs of our students and providing them pathways to success.

The Department takes its role as part of a Hispanic **Serving** Institution seriously.

***E**ngagement:* ECE faculty and staff will engage with students, both inside and outside the classroom, to build a community that helps to show students they have a place in the engineering profession.

A high level of engagement with the Department boosts self-efficacy and retention.

ECE Goals

Goal 1. Enhance student success in ECE and facilitate social mobility

Strategies

1.1 Increase the number of students successfully participating in the ECE program. Improvements in recruitment and retention will drive enrollment increases.

1.2 Provide exceptional academic programs that deliver fundamental concepts along with exposure to emerging topics.

1.3 Increase student engagement in ECE through the support of student organizations (IEEE, HKN, WiSTEM), design contests and research opportunities. These activities bolster the students' STEM self-efficacy.

1.4 Promote career awareness and experiential learning. STEM career focus is an important element in retention.

1.5 Pursue funding to support student centered programs.

ECE leads the College in evidence-generating programs to increase retention. These include peer mentoring, data analytics, metecognition training, program complexity analysis, and concept inventory mapping.

The ECE concentrations and STEM electives allow students to tailor their degrees to make them the ideal candidate for the jobs they want after graduation.

Goal 2. Elevated funded research and the associated scholarship, technology transfer and development of intellectual property.

2.1 Increase proposal submission rate to support $\frac{\$200k}{faculty \cdot year}$ College goal.

2.2 Build collaborative teams to pursue large funding opportunities.

2.3 Generate publications that demonstrate excellence in engineering fields. The h-index, i10-index and number of citations will be used as indicators.

Multidisciplinary teams and teams that reach across institutions are particularly impactful.

Indicators will be compared to faculty at peer institutions in similar areas at similar academic ranks

Goal 3. Amplify engineering extension and outreach

3.1 Support engineering outreach and extension actives.

Engineering outreach is an essential element in the College's recruitment plan.

3.2 Develop revenue-generating professional development programs.

3.3 Support professional organizations, journal & conference publications and funding agencies related to research programs

Goals 4. Build a robust ECE Department

4.1 Support faculty and staff engagement in the Department, College and University.

4.2 Promote faculty participation in committee work, planning efforts and task forces that strengthen the Departmental, College and University.

Faculty and staff engagement support student retention and build a sense of community that leads to a better learning environment.
Faculty must take ownership in the success of the University. Participation in committee work and extracurricular activities is expected of all faculty.

ECE KPIs

KPIs for Goal 1. Enhance student success in ECE and facilitate social mobility

KPI 1.1 Achieve an Undergraduate enrollment of 300 students and a Graduate enrollment of 150 students.

A healthy ECE Department will have $\#RA \geq \#TA$ positions and 1.5 PhD students per faculty.

KPI 1.2 Maintain ABET accreditation. Support peer mentoring programs for all of the ECE core classes. Develop a new class in an emerging area every two years. Regularly update real-world examples in all elective courses.

KPI 1.3 Promote faculty participation with student organizations and projects. 100% of faculty engage at least one undergraduate in research each year. 50% of faculty mentor a capstone project or design challenge each year.

Increasing engagement with the Department through hands-on projects increases student success.

KPI 1.4 Present information on co-ops and internships to IEEE each year. 80% of faculty attend a career fair each year to understand the job market. 100% of the faculty include information on career opportunities in their classes.

Co-ops and internships support the development of STEM self-efficacy.

KPI 1.5 Maintain, throughout the Department, at least one funded program for student-centered programs.

KPIs for Goal 2. Elevated funded research and the associated scholarship

KPI 2.1 100% of the faculty meet the proposal submission rate. 60% of the faculty achieve the funded research rate. 80% of submitted proposals include support for at least one graduate student and tuition. 60% of submitted proposals include support for at least one undergraduate student.

Funded research is an essential element of an engineering department.

KPI 2.2 Members of the Department will participate in two large collaborative funding opportunities or proposals per year.

KPI 2.3 60% of the faculty will be above average in h-index, i10-index, and number of citations as compared with faculty at peer institutions at a similar rank and in related research areas.

KPIs for Goal 3. Amplify engineering extension and outreach

KPI 3.1 100% of the faculty will participate in outreach or extension activates at least twice per year.

KPI 3.2 100% of the graduate courses will be offered online to support the MEEE program. Faculty participation in revenue-generating short-courses will be encouraged.

A strong online MEEE program is essential for the future of the ECE graduate program.

KPI 3.3 100% of the faculty will participate as an article or proposal reviewer each year. 80% of the faculty will provide leadership service for a professional organization.

Efforts in this area work to strengthen specific research areas.

KPIs for Goals 4. Build a robust ECE Department

KPI 4.1 100% of the faculty will participate in extracurricular activities such as graduation, senior banquets, and homecoming activities. 100% of the faculty members will be a present and active participant at departmental functions (e.g., faculty meetings, seminars) and be available and responsive to students and peers.

100% of the faculty members can be relied upon to complete assigned tasks in a thoughtful, thorough, complete, and timely manner with, as appropriate, due attention to input from colleagues and departmental, college, and university policies.

Engagement in the department supports student success.

KPI 4.2 100% of the faculty will make positive contributions to committee work.

The administrative burden on departments is growing. The faculty must share the workload.