

SCHOOL OF ELECTRICAL AND COMPUTER ENGINEERING

Mission

The School of Electrical and Computer Engineering provides a comprehensive education in electrical and computer engineering, imparting to its graduates a breadth and depth of knowledge along with a meaningful design experience.

Vision

The School of Electrical and Computer Engineering will be recognized internationally for the quality of its graduates, and for excellence in instruction, research, and service to the profession.

Core Values

- **Diversity** – We respect others and value diversity of opinions, freedom of expression, and other ethnic and cultural backgrounds.
- **Integrity** – We are committed to the principles of truth and honesty, and we will be equitable, ethical, and professional.
- **Service** – We believe that serving others is a noble and worthy endeavor.
- **Intellectual Freedom** – We believe in ethical and scholarly questioning in an environment that respects the rights of all to freely pursue knowledge.
- **Excellence** – We seek excellence in all our endeavors, and we are committed to continuous improvement.
- **Stewardship of Resources** – We are dedicated to the efficient and effective use of resources. We accept the responsibility of the public's trust and are accountable for our actions.

Goals, Critical Success Factors, Objectives and Strategies

Goal One. Academic Excellence – Create and uphold high standards of excellence in instruction and research.

Critical Success Factors:

- Listed among the top 50 publicly funded ECE programs in the United States.
- Full ABET accreditation.
- 25 total tenure track faculty members.
- 3 permanent faculty at OSU/T.
- Research funding an average of \$175,000/FTE/year.
- Teaching load of three courses per year for faculty with at least \$150,000 in extramural research expenditures.
- Quarter-time TA support for all classes having at least 30 students.
- Rate of publication by faculty an average of two journal articles and two conference publications per year per faculty member.
- Increased number of our own BS graduates who continue into our graduate program.
- Increased number of citizens and permanent residents pursuing graduate degrees.
- One Wentz Research Project per year.
- Two national scholarship/fellowship winners per year.
- 5 PhD and 50 MS graduates per year.
- 40% of MS students completing the thesis option per year.
- 100% of PhD students submitting a journal manuscript prior to graduation.
- Three endowed professorships.
- Student:faculty ratio of no more than 20:1 (undergraduate plus graduate).
- Modern classroom technology.
- Faculty and staff compensation equal to peer institutions.
- Full placement of School graduates desiring employment or post-graduate education.

Objectives:

Objective 1.1: Strengthen the undergraduate ECE program to include a balance between breadth and depth and between theory and design, exceeding all requirements for full ABET accreditation.

Strategies:

- Integrate design throughout the curriculum.
- Update equipment in instructional laboratories.
- Perform appropriate assessment and periodic improvement.

Objective 1.2: Develop and implement innovative courses of instruction at all levels that encourage students to maximize their potential.

Strategies:

- Implement advanced pedagogical techniques.
- Encourage faculty to conduct educational research and scholarship.
- Recognize outstanding teaching and innovation.
- Assess learning outcomes.

Objective 1.3: Accredit computer engineering as a separate degree program.

Strategies:

- Modernize and augment the existing computer engineering curriculum.
- Hire three additional computer engineering faculty members.

Objective 1.4: Develop and strengthen focused research and instructional programs that excel in key areas of importance to the state and nation.

Strategies:

- Increase frequency and quality of communication with our industrial partners.
- Encourage interdisciplinary research activities and collaboration.
- Provide funding for and encourage faculty professional development.

Objective 1.5: Provide a mentoring experience for our students through interaction with highly qualified faculty engaging in research and instruction.

Strategies:

- Strengthen the existing research scholars program.
- Expand participation by faculty in mentoring senior design projects.
- Assist students in competing for national awards.
- Promote the thesis option for MS students.

Objective 1.6: Develop an externally funded and nationally recognized center of excellence.

Strategies:

- Identify key area(s) of emphasis.
- Increase faculty numbers to provide “critical mass”.
- Encourage collaboration and interdisciplinary activities.
- Provide funding for and encourage faculty professional development.

- Recruit high quality graduate students.

Objective 1.7: Develop and retain a nationally competitive faculty.

Strategies:

- Raise salaries to a peer-competitive level.
- Hire additional highly qualified faculty.
- Place permanent tenure track faculty at OSU-Tulsa.
- Provide mentoring to new faculty.
- Provide funds for professional development activities.
- Provide high quality modern facilities, including laboratories, offices and classrooms.
- Provide enhanced indirect cost return to both faculty and the School.
- Reduce the dependence on soft money.
- Seek help from CEAT and University administration.

Goal Two. Student Recruitment and Development – Create a collegial environment that attracts outstanding students and encourages academic excellence, career planning, personal growth, discovery of knowledge, and leadership achievement.

Critical Success Factors:

- Be recognized as the top School of Electrical and Computer Engineering in Oklahoma, and in the top 5 in the region.
- Increase diversity in the School.
- 90 B.S. graduates annually.
- 90% of undergraduate students earn their B.S. in no more than 5 years.
- Increase student participation in IEEE and Eta Kappa Nu.
- Increase participation in and support for EKids or other K-12 outreach programs.
- Increase the number of undergraduate and graduate scholarships and fellowships.
- Increase the number of students competing for and winning nationally competitive scholarships.
- Increase the amount of funds available for TA positions.
- \$50,000 in annual departmental scholarship support per year.
- Design projects in national competitions.

Objectives:

Objective 2.1: Provide quality advisement and career counseling by faculty to each student.

Strategies:

- Fully implement Areas of Specialization.
- Conduct advising seminars.
- Emphasize the importance of graduate education and research.
- Conduct a graduate recruitment dinner each spring.
- Assist students in competing for national awards.

Objective 2.2: Be recognized as the top School of Electrical and Computer Engineering in Oklahoma.

Strategies:

- Raise visibility within the state by publicizing our success.
- Increase extramural funding.
- Encourage top students to pursue graduate study.
- National recognition for faculty and students.
- Active participation in scholarship and professional development.
- Attract and retain top students.

Objective 2.3: Recruit and admit the most qualified students in CEAT.

Strategies:

- Participate fully in college and university recruitment efforts.
- Provide adequate financial support to highly qualified students.
- Identify funding for PhD fellowships.
- Draw qualified students through the freshman research scholar program and other programs.
- Welcome prospective students to the department with enthusiasm.
- Recruit nationally for top PhD students.

Objective 2.4: Enhance retention and graduation rate.

Strategies:

- Provide a high quality experience in ENGR 1111.
- Increase faculty-student contact during first two years.
- Provide personalized advisement and career counseling.
- Enhance commitment to the freshman research scholar program.
- Increase the level of student financial support.
- Be proactive in obtaining graduate waivers.
- Raise annual giving by alumni.
- Assist students in competing for national awards.

Objective 2.5: Increase the quality of graduate students and the number participating in research.

Strategies:

- Increase extramural funding.
- Raise admission requirements.
- Promote the MS thesis option.
- Increase the number of PhD students and the ratio of PhD:MS students.

Goal Three: Economic Development – Contribute to the economic vitality and growth of Oklahoma through collaborative relationships with its public and private enterprises.

Critical Success Factors:

- Number of student internship opportunities in the private and public sectors.
- Placement of students and graduates in government labs.
- Be identified as a recruiting partner by key companies.
- Four Senior Design projects per year sponsored and funded by industry.
- Faculty participation on advisory boards, panels, and professional bodies.
- Participate in SBIR, STTR and OCAST research programs with industry.

Objectives:

Objective 3.1: Establish strong relationships with regional and national industries.

Strategies:

- Increase participation by industry representatives on the ECEN Industrial Advisory Board.
- Invite select industry representatives to participate in departmental activities, including student professional societies.
- Encourage faculty summer programs.

Objective 3.2: Develop strong working relationships with national laboratories and funding agencies.

Strategies:

- Encourage faculty summer programs.
- Assist students applying for fellowship and internship programs.

Objective 3.3: Develop collaborative relationships with other academic institutions, research laboratories, and federal agencies.

Strategies:

- Promote faculty visitation and exchange opportunities.
- Interact and exchange information through opportunities provided by professional societies and organizations (IEEE, ECEDHA, etc.).

Goal Four: Diversity – Increase diversity and create an environment of respect for individuals.

Critical Success Factors:

- Increase the number of minority students in the School, and the number of minority graduates produced each year.
- Increase the number of female students in the School.
- Hire the first female faculty member for the School.
- Encourage mentoring of minority undergraduates by minority graduate role models.

Objectives:

Objective 4.1: Increase the number of minorities and underrepresented groups among students, faculty, and staff.

Strategies:

- Acknowledge and participate in college programs that foster diversity (multicultural engineering program, SBETA, etc.).
- Recruit faculty and staff from underrepresented groups.
- Develop a mentoring culture among faculty and students to foster diversity.
- Assist students in applying for scholarships, fellowships, and awards that recognize those from underrepresented groups.

Goal Five: Human Resources – Attract and develop faculty who are nationally recognized, or have the potential to be, and ensure the professional growth of faculty and staff by facilitating opportunity and performance.

Critical Success Factors:

- New faculty achieve promotion and tenure on schedule.
- Student:faculty ratio (undergraduate and graduate) in line with peer institutions.
- Teaching load of one course per semester for all new faculty during first year.
- Open faculty positions filled with qualified individuals.
- 90% membership in IEEE and/or NSPE and/or ASEE.
- Involvement in professional development and service.
- Salaries equal to peer institutions.
- New faculty recognized for teaching and scholarship.

Objectives:

Objective 5.1: Provide a mentoring experience for all new faculty.

Strategies:

- Provide a senior faculty member to guide each new faculty member.
- Provide timely feedback and guidance on performance issues.

Objective 5.2: Provide opportunities for faculty to participate in summer programs, sabbatical leaves, periods in industry and government, etc.

Strategies:

- Encourage faculty summer programs.
- Assist faculty applying for fellowship and internship programs.

Objective 5.3: Provide opportunities for staff development, and reward those who complete such programs.

Strategies:

- Base raises and promotions at least partially on completion of training activities.
- Provide time off for professional development and education.
- Increase funding for faculty and staff development.
- Focus on advancement and retention of quality faculty.

Objective 5.4: Increase the percentage of women and underrepresented groups on the faculty.

Strategies:

- Recruit with an emphasis on under represented groups.

Objective 5.5: Reward innovation in all areas (research, instruction, service, etc.).

Strategies:

- Recognize that all faculty have a contribution to make while emphasizing scholarship and peer evaluation.
- Provide a reduced load for faculty when appropriate to enable professional development.

Objective 5.6: Establish an environment where ethics, integrity, professionalism and responsibility guide our actions.

Strategies:

- Insist on appropriate behavior at all levels.
- Lead by example from the top down.
- Expect excellence.

Goal Six: Fiscal Resources and Infrastructure – Leverage and focus financial and physical resources to achieve strategically targeted national prominence.

Critical Success Factors:

- Adequate office and laboratory space for new faculty and graduate students.
- Space for student projects and outreach programs (EKids).
- Multimedia classrooms in Engineering South.
- Timely budget decisions without the necessity for deficits.
- Budget for summer programs.
- Growth in extramural funding.
- Adequate funding from CEAT and University sources.

Objectives:

Objective 6.1: Operate with a balanced budget.

Strategies:

- Increase extramural funding.
- Assist CEAT in justifying the need for and obtaining additional resources.
- Provide enhanced indirect cost return to both faculty and the School.
- Seek help from CEAT and University administration.

Objective 6.2: Provide adequate modern classroom and laboratory space.

Strategies:

- Renovate additional classrooms in Engineering South.
- Create three new multimedia classrooms in Engineering South.

Objective 6.3: Provide technological resources for instruction and research.

Strategies:

- Justify the need for additional TA support from CEAT.
- Provide additional quality space for research labs.
- Upgrade out of date laboratory equipment.
- Provide for routine maintenance of office, laboratory, and instructional equipment.
- Seek help from CEAT and University administration.

Goal Seven: Image Development – Communicate an image that reflects achievement and pride.

Critical Success Factors:

- Peers and constituents are aware of and correctly comprehend and respect the School's quality and achievements.

Objectives:

Objective 7.1: Publicize and reward our successes.

Strategies:

- Encourage faculty summer programs.
- Assist students applying for fellowship and internship programs.
- Build a departmental endowment.
- Promote the School through publication of the ECEN Newsletter and other means.
- Track and aggressively publicize student, staff and faculty achievements.
- Actively promote individuals (faculty, staff and students) for recognition and awards.
- Communicate success with alumni and constituents.
- Encourage visits and exchanges with peers and colleagues.
- Welcome prospective students and parents with enthusiasm.
- Host professional meetings and conferences.

Goal Eight. Outreach, Partnership and Collaboration – Provide programs and services that promote interaction between industries, faculty and students.

Critical Success Factors:

- Increase participation by faculty teaching academic credit courses and continuing education courses.
- Increase extramural funding.
- Increase interaction with industry, including SBIR, STTR, and other programs.
- Increase number of senior design projects sponsored by industry to four.
- Participate in OCAST.

Objectives:

Objective 8.1: Develop collaborative research and regular interaction with Oklahoma and regional industries.

Strategies:

- Encourage continuing education and service courses.
- Sponsor technical meetings and workshops.
- Partner with Oklahoma and regional industries in SBIR, STTR, OCAST and other programs.