UNIVERSITY OF OKLAHOMA

COLLEGE OF ENGINEERING

5-YEAR STRATEGIC PLAN

(2009 – 2013)

The Year 2009 marks the Centennial of Engineering at the University of Oklahoma. This plan affirms our vision and lays out the strategy for pursuing that vision as we begin the next hundred years.

VISION

To produce graduates and knowledge sought first in tomorrow’s technology-driven world

STRATEGY

Attract a talented and diverse student body and empower them to transform quality of life through

Education

Life-changing learning experience

and

Research and Development

World-changing discovery and innovation experience

GOALS:

1) Enhance undergraduate programs through excellence in experiential learning and innovation in knowledge delivery.

2) Enhance the college community through outreach, mentoring and diversity.

3) Enhance the impact of research and graduate education programs through interdisciplinary collaboration, strategic partnerships, student scholarship, and faculty development.
GOAL 1 Enhance undergraduate programs through excellence in experiential learning and innovation in knowledge delivery.

Strategy 1.1: Demonstrate pursuit of excellence through continuous improvement in all undergraduate programs.

Action 1.1.1 Each program undergoes a formative assessment process.
- Each undergraduate program is reaccredited by ABET in the 2011-2012 accreditation cycle.
- Annual program objectives and outcomes assessment reports are submitted by October 1.
- Each school has a point of contact who has participated in the ABET program outcome assessment workshop and ABET summit.
- At least 3 CoE faculty members are ABET evaluators.

Strategy 1.2: Provide an outstanding undergraduate learning experience.

Action 1.2.1: Promote excellence in undergraduate course instruction.
- Class sizes are limited to 90 and 60 students for lower-level and upper-level engineering courses, respectively, excluding freshman and transfer engineering orientation courses.
- A minimum of 5 engineering courses with honors sections are offered per year.
- Incentives are provided for outstanding teachers and teaching assistants.

Action 1.2.2: Provide outstanding academic support through the Williams Student Services Center (WSSC).
- Implement and maintain Engineering Advising Syllabus.
- Upper division engineering students mentor incoming freshman at the ratio of 1:15 and transfer students at the ratio of 1 per school.
- At least 80% of students will, before graduation, participate in one or more of the following experiences facilitated by WSSC:
  ✓ International (increase by 50%; e.g., study abroad semester at sea, exchange programs, language studies);
  ✓ Practical (e.g., internships and cooperative arrangements);
  ✓ Professional and leadership (e.g., organizations and technical societies);
  ✓ Scholastic (e.g., honors, minors and options).

Strategy 1.3: Integrate experiential learning in the Engineering Practice Facility (EPF) and throughout the curriculum.

Action 1.3.1: Incorporate experiential learning in all curricula.
- All programs include courses with laboratory and field experiences, teamwork, group projects requiring oral and written communications, research, service and community engagement, and independent learning experiences promoting life-long learning.

Action 1.3.2: Provide excellent infrastructure for highly active organizations and teams competing nationally at the championship level.
- National competitions are supported and periodically hosted in EPF.
- All student teams achieve top 10 (at least 2 1st place) finishes at national competitions.
- All college-recognized organizations and competitive teams have faculty advisors.

GOAL 2 Enhance the college community through outreach, mentoring and diversity.
Strategy 2.1: Promote K-12 STEM outreach.

Action 2.1.1: Provide outreach activities from the EPF.
- Host at least 20 K-12 group visits to the EPF per year.

Action 2.1.2: Engage the K-12 community through SEED Center.
- Maintain substantive K-12 collaborations at 10 schools in Oklahoma.
- Maintain a participation level of 10 qualified undergraduate SEED Scholars to lead K-12 STEM experiential learning and community engagement activities.

Strategy 2.2: Recruit, retain, and graduate an outstanding student body.

Action 2.2.1: Enhance promotion of programs to prospective students (Incentives, brochures, web-pages, campus visits / customized tours, and promotional material updates and recruitment efforts at national and international conferences).
- Increase undergraduate enrollment to 2100.
- Increase graduate enrollment to 600.
- Increase URM and women undergraduate and graduate enrollment to 25%.
- Host campus visitation of 30 outstanding graduate student prospects per year.
- Increase domestic (US Citizen and Permanent Resident) graduate enrollment by 50%.
- Increase enrollment in accelerated BS/MS programs by 50%.

Action 2.2.2: Provide effective transition experience for transfer students.
- Hold transfer conference every other year for institutions with CoE matriculation agreements.

Action 2.2.3: Provide competitive scholarships, fellowships and stipends based on scholastic merit and leadership potential.
- Add at least 4 new Distinguished Scholars Program (DSP) or Leadership scholarships.
- Increase number of National Scholars in CoE to 170 students.
- Increase the number of undergraduate students receiving nationally competitive scholarships (e.g., Goldwater, Gates and Marshall Scholarships).
- Provide competitive stipends to all graduate assistants.
- Increase the number of graduate students receiving prestigious fellowships (e.g., NSF, GAANN, IGERT).

Action 2.2.4: Assess and improve the effectiveness of mentoring, tutoring, and advising.
- Increase first-time, full-time freshman-to-sophomore retention to 60%.
- Increase 4-year graduation rate of transfer students to 35%.
- Increase 6-year in-college baccalaureate graduation rate to 40%.
- Increase on-time graduation rates (2 years MS, 4 years PhD) for full-time, on-campus graduate students to 70%.
- Increase graduating student satisfaction with advising services to 90% on exit interviews.

Strategy 2.3: Promote student, faculty and staff diversity.

Action 2.3.1: Seek diverse representation in candidate pools, consistent with availability.
- Increase number of diverse faculty and staff hires.
Action 2.3.2: Provide an infrastructure responsive to the needs of the diverse college community.
• Provide periodic diversity and sensitivity training for students, faculty, and staff.
• Establish a Women in Engineering (WiE) support program.
• Enhance MEP capabilities to conduct summer bridge sessions for entering students.

GOAL 3 Enhance the impact of research and graduate education programs through interdisciplinary collaboration, strategic partnerships, student scholarship, and faculty development.

Strategy 3.1: All graduate programs will demonstrate pursuit of excellence through continuous improvement.

Action 3.1.1: Each program undergoes a formative assessment process.
• Annual program objectives and outcomes assessment reports are submitted by October 1.
• Each instructor provides content-based assessment on courses coordinated through appropriate committees in accordance with the departmental outcome assessment process.

Strategy 3.2: Provide an outstanding graduate learning experience.

Action 3.2.1: Promote excellence in graduate course instruction.
• At least 1 faculty member per school participates annually in professional conferences and workshops in engineering education with emphasis on innovation in graduate instruction.
• Incentives are provided for outstanding teachers.

Action 3.2.2 Students actively participate in research, technological innovations, and knowledge dissemination.
• Graduate Student Center (GSC) is established to promote interdisciplinary synergy, sense of identity and community.
• 75% of full time graduate students actively participate as graduate research assistants.
• 75% of Master students pursue thesis option.
• 75% of graduating PhD students co-author presentations at national/international conferences.
• 90% of graduate research assistants co-author peer-reviewed publications.

Action 3.2.3 Promote international collaboration in graduate education.
• Increase participation in international dual degrees, certificates, and internships.

Strategy 3.3 Promote interdisciplinary research and scholarship.

• Increase interdisciplinary proposals and funding by 15%.
• Increase the number of college seed funding proposals funded to 8/year.
• Secure Competitive College Investment Fund award for 1 new College/Departmental Organization every 2 years.
• Attain University Strategic Organization designation for 1 existing center.

Action 3.3.2: Designate one top-priority research initiative for strategic investment.
• Play a lead role in creation of a large national research center (e.g., NSF ERC or STC) / University
Strategic Research Initiative.

- Attain University Strategic Organization designation for a new center aligned with this initiative.

Action 3.3.3 Strengthen research collaboration with Oklahoma biomedical institutions (e.g., OU Health Sciences Center (OKC and Tulsa campuses), Oklahoma Medical Research Foundation, Presbyterian Health Foundation, etc.).

- Increase numbers of collaborative proposals with OUHSC colleagues.

Action 3.3.4: Enhance undergraduate interdisciplinary research.

- Increase the number of undergraduate students participating in interdisciplinary research.
- Support at least 5 team-based REU and UROP projects per year.
- Increase collaborations with Honors College.

Action 3.3.5: Increase engineering education research through the SEED Center.

- Engage at least 1 faculty member in each School in topics focused on transforming engineering education.
- SEED Fellows perform funded research, involving doctoral students, in engineering education.

Strategy 3.4 Enhance research capabilities, partnerships and performance.

Action 3.4.1: Develop proactive partnership with funding agencies and research policy-making bodies for visibility and awareness of opportunities, mechanisms and success factors.

- Conduct 4 networking and relationship-building events with companies and governmental agencies annually.
- Increase participation in agency programs (e.g., summer fellowships, sabbaticals, residencies).
- Increase participation in national research policy-making bodies.
- Increase leadership in professional societies, editorial boards, conferences and symposia.

Action 3.4.2: Develop strong ties with the private sector to better understand research/technology needs and funding opportunities.

- Increase industry supported research projects by 20%.
- Increase number of students involved in technology development as interns in the Center for Creation of Economic Wealth.
- Increase number and success rate of spin-off companies.
- Increase number of partnerships through industry consortia.

Action 3.4.3 Provide workshops, mentoring and internal reviews for research proposals.

- Increase proposal success rate by 15%.
- Maintain an NSF-CAREER proposal success rate of 2/year.

Action 3.4.4 Promote international collaboration in research.

- Increase participation in international collaboration.

Action 3.4.5 Recognize and reward scholarship and productivity.

- Develop and present college-level faculty and student awards for superior research, scholarship and technology development.
Action 3.4.6: Measure research performance by national-norm metrics.

- Increase number of PhD students enrolled per full time faculty to 3.
- Increase annual college research expenditures to $27M.
- Increase 3-year average annual peer reviewed publications to 4 per full-time faculty member.
- Increase 3-year average annual invention disclosures to 15.
- Increase 3-year average annual patent awards to 10.