

COLLEGE OF ENGINEERING
STRATEGIC PLAN FOR
2014-2019

MISSION

The mission of the UNT College of Engineering is to capitalize on the opportunity for innovation and excellence in teaching, research and service. This will be achieved by a strategic alliance among all of the college's constituencies in the region, the state of Texas and the nation. The constituencies involved include foremost our undergraduate and graduate students as well as academic units and industry, particularly in North Texas, so as to foster economic development and promote an academically diverse environment.

VISION

The vision of the College of Engineering is to have the highest quality teaching and multidisciplinary research programs in North Texas and beyond: in strategically selected areas of engineering, engineering technology, and computer science that service the community, industry, and the profession; in an intellectually stimulating and diverse environment; and in support of industry and economic development.

STRATEGIC PLAN

The strategic plan presents strategies, actions and metrics to develop undergraduate and graduate programs, and enhance the research, reputation and advancement of the UNT College of Engineering (CENG) from its current state in 2014 to its desired state in 2019 consistent with its university mission and 2014 Academic Affairs Strategic Plan.

Goal 1: Undergraduate education

VISION

CENG will provide a rigorous educational experience to a diverse student body, based on learning outcomes defined by ABET.

TOP LEVEL GOAL:

Develop and sustain excellent undergraduate programs

Excellent engineering undergraduate programs are distinguished by the quality of the faculty, the quality of the facilities, the quality of the support provided to students inside and outside the classroom, and the quality of the undergraduate student. The following are the strategies we will use to achieve this goal.

Objective 1:

Our undergraduate programs will achieve accreditation and produce graduates who are prepared to have careers in industry or government, start their own businesses, or enter graduate school.

Actions:

1. Invite ABET for accreditation visits of all programs
2. Engage our faculty in a process of continuous improvement of all our degree programs
3. Invite employers to our Career Fairs
4. Provide opportunities for students to participate in events to improve their technical skills
5. Provide opportunities for students to participate in events to improve their communication skills
6. Provide information about graduate school and careers after graduate school to our students

Metrics:

1. Number of ABET accredited programs
2. Number of employers attending the Career Fairs
3. Percentage of graduates who have a job offer, start a business, or enter graduate school within 6 months of graduation
4. Number of students in the Grad Track program
5. Number of events to inform our students about graduate school and careers after graduate school
6. Number of Engineering internship opportunities posted by UNT Career Services
7. Number of students participating in internships
8. Number of students who participate in undergraduate research activities at UNT and elsewhere

9. Number of students who make poster presentations in UNT-sponsored or external events
10. Number of students who participate in national or international student competitions or events

Goal 2: Graduate education, research, scholarship, and innovation

VISION

CENG will provide a rigorous research experience to a diverse graduate student body. Students will be engaged in research and scholarship activities supported by federal, state, local, and industrial funding. CENG will continue to increase its levels of funded research, scholarship, creativity, and innovation in order to enrich our graduate education, contribute to economic growth, and improve CENG's and UNT's visibility as a top-tier institution. CENG values collaborative research and scholarly efforts within UNT, and with national and international institutions. CENG values technology transfer efforts through commercialization of research outcomes in the form of products, processes, and services developed which aim at the growth of the regional and national economy.

TOP LEVEL GOAL:

Develop and sustain excellent graduate programs

Excellent graduate programs are distinguished by the quality of the faculty, the quality of the facilities, the quality of the research, the quality of the scholarship and innovation, and the quality of the graduate students, especially at the Ph.D. level. The following are the strategies we will use to achieve this goal.

Objective 1:

CENG faculty who make significant contributions in research, scholarship, and innovation will have a workload that will be clearly representative of that; other faculty will have a workload that will represent an increase in their teaching and service contributions, thus contributing to the mission of CENG in different, equally valued, ways

Actions:

1. Value all contributions of CENG faculty based on their established workload
2. Adjust the workload of faculty to reflect their actual contributions to teaching, research, and service
3. Hire faculty who come from research Universities and who have a strong research record, appropriate to their level as faculty
4. Develop a robust mentoring program for junior faculty

Metrics:

1. Workload of CENG faculty
2. Merit evaluations of faculty
3. Success of faculty hires to achieve P&T

Objective 2:

CENG graduate students and researchers will have access to up-to-date, modern research facilities

Actions:

1. Continuous review the quality of our facilities
2. Continuous review the usage of our facilities
3. Upgrade of facilities where needed
4. Reallocation of research space where warranted

Metrics:

1. Amount of internal funds used for repair, replacement, and renovation of facilities and equipment
2. Amount of external funds used for repair, replacement, and renovation of facilities and equipment
3. Contributions to our graduate mission (graduated students, research expenditures, scholarship, innovation) of faculty who occupy research space

Objective 3:

Achieve a moderate increase in the size of the Master's student body, while increasing diversity and quality

Actions

1. Actively recruit a better body of M.S. students
2. Actively recruit a diverse body of M.S. students
3. Actively recruit UNT students for Grad Track
4. Establish 1+1 and 3+2 agreements with national and international Universities
5. Create MOUs with national and international institutions for recruiting a high quality and diverse body of M.S. students

Metrics

1. Number of recruiting trips
2. Size of our Master's student body
3. Ethnic diversity of our Master's student body
4. Gender diversity of our Master's student body
5. Number of students in the Grad Track program
6. Standardized test scores of incoming Master's students
7. GPA of incoming Master's students
8. Number of MOUs, 1+1, and 3+2 agreements with national and international Universities
9. Number of students attending UNT because of MOUs, 1+1, or 3+2 agreements with national and international Universities

Objective 4:

Increase retention and 3-year graduation rates of Master's students

Actions

1. Actively recruit a better body of M.S. students
2. Provide necessary courses for timely graduation
3. Provide excellent advising leading to timely graduation
4. Expect that all faculty who have a research workload mentor at least one graduate student

Metrics

1. Number of recruiting trips
2. Standardized test scores of incoming Master's students
3. GPA of incoming Master's students
4. Retention rates of M.S. students per year
5. Retention rates of underrepresented M.S. students per year
6. Three-year graduation rates of M.S. students
7. Three-year graduation rates of underrepresented M.S. students
8. Average years to graduation for M.S. students
9. Average years to graduation for underrepresented M.S. students
10. Number of graduate students advised per faculty with research workload
11. Number of graduate students graduated per faculty with research workload

Objective 5:

Achieve a strong increase in the size of the Ph.D. student body, while increasing diversity and quality

Actions

1. Actively recruit a better body of Ph.D. students
2. Actively recruit a diverse body of Ph.D. students
3. Establish MOUs with international institutions for joint Ph.D. degrees

Metrics

1. Number of recruiting trips
2. Size of our Ph.D. student body
3. Percentage of Ph.D. students as part of the total graduate student population
4. Ethnic diversity of our Ph.D. student body
5. Gender diversity of our Ph.D. student body
6. Standardized test scores of incoming Ph.D. students
7. GPA of incoming Ph.D. students
8. Number of MOUs with international institutions for joint Ph.D. degrees
9. Number of students attending UNT because of MOUs with international institutions for joint Ph.D. degrees

Objective 6:

Increase retention and 6-year graduation rate of Doctoral students

Actions

1. Actively recruit a better body of Ph.D. students

2. Provide necessary courses for timely graduation
3. Provide excellent advising leading to timely graduation
4. Expect that all faculty who have a research workload mentor at least one graduate student

Metrics

1. Number of recruiting trips
2. Standardized test scores of incoming Ph.D. students
3. GPA of incoming Ph.D. students
4. Retention rates of Ph.D. students per year
5. Retention rates of underrepresented Ph.D. students per year
6. Six-year graduation rates of Ph.D. students
7. Six-year graduation rates of underrepresented Ph.D. students
8. Average years to graduation for Ph.D. students
9. Average years to graduation for underrepresented Ph.D. students
10. Number of graduate students advised per faculty with research workload
11. Number of graduate students graduated per faculty with research workload
12. Number of Ph.D. students graduating per faculty per year

Objective 7:

Enhance the CENG funded research and scholarly productivity

Actions:

1. Continuously review P&T and merit evaluation standards to encourage more funded research and scholarly output
2. Support the faculty in identifying funding opportunities and submitting funding proposals
3. Support the faculty in identifying *large* funding opportunities and submitting funding proposals
4. Support the faculty in joining proposal teams from across UNT and the nation
5. Value interdisciplinary efforts
6. Increase the level of competitive research awards
7. Increase the level of competitive research expenditures
8. Increase the faculty publication rate in quality venues
9. Engage undergraduate students in scholarly and research activities
10. Engage graduate students in scholarly and research activities
11. Ensure that every Ph.D. student graduates with a publication record appropriate for his or her discipline, which will make him or her competitive in the eyes of potential employers
12. Encourage the filing of patents and copyrights, and IP technology transfer by faculty and students
13. Engage in technology transfer with industry

Metrics:

1. Competitive research awards per faculty
2. Competitive research expenditures per faculty
3. Average size of funding per research award per PI per year
4. Average size of successful proposal teams
5. Institutional diversity of successful proposal teams
6. Diversity of funding sources
7. Journal publications per faculty
8. Conference publications per faculty
9. Copyrights and patents awarded to faculty
10. Number of citations per faculty
11. Journal publications per doctoral graduate
12. Conference publications per doctoral graduate
13. Journal publications per M.S. thesis or project graduate
14. Conference publications per M.S. thesis or project graduate
15. Copyrights and patents awarded to students

Goal 3: Reputation and Community Engagement

VISION

The College of Engineering will gain its recognition and reputation through excellence in its educational and scholarly endeavors, and through an emphasis in the unique creative and innovative abilities represented in its diverse faculty and student body. This information will be disseminated to the community through engagement, service, and outreach. The strengthening of our reputation will inspire involvement and giving by alumni and friends, including corporate partners.

TOP LEVEL GOAL:

Focus on engagement and outreach activities that will raise the profile and reputation of CENG.

Excellent Colleges of Engineering have national and international reputation for their accomplishments. This reputation is built over time and is maintained through constant engagement of the College with the community and through outreach. At the same time, the College of Engineering contains unique expertise of its faculty, staff, and student body and has the responsibility to act as a community asset, as much as this is permitted by its primary foci on education and scholarship. In this case “community” is defined broadly to include both the academic and non-academic parts.

Objective 1:

Our faculty will enhance their visibility in the community

Actions:

1. Increase the number of faculty in leadership positions in the profession
2. Increase faculty involvement in public service activities, particularly those activities aligned with their technical expertise, that promote positive visibility for the college
3. Encourage and support faculty seminars given at peer institutions
4. Increase the number of faculty who involve local industry in their instructional or research agenda
5. Increase the diversity of the administrators, faculty and staff reflective of the population served

Metrics:

1. Number of leadership positions held by faculty (e.g. senior or fellow level membership in professional societies; membership in journal editorial boards; service as a program manager to a federal research agency; etc.)
2. Number of faculty engaged in discipline-specific public service activities
3. Number of faculty seminars given at peer institutions
4. Size of industry-funded research grants
5. Diversity of the administrators, faculty and staff

Objective 2:

Our College will enhance its visibility in the community

Actions:

1. Organize seminar series to bring academics and industry leaders to UNT
2. Enhance communication activities designed to increase involvement of alumni and friends in the life of CENG
3. Increase industry participation in senior design, faculty research network development and advisory boards to cover all segments of the college
4. Bridge to professional society leadership relevant to each department and cross-college diversity associated groups through annual hosting of meetings in Innovation Hall
5. Increase the visibility of the College through focused marketing and dissemination through all media
6. Organize and host community outreach events
7. Increase donations to CENG

Metrics:

1. Talks by leaders of academia and industry (guest lecturers, seminar speakers, etc.)
2. Press releases regarding achievements of faculty and students of CENG
3. Number of outreach events hosted or organized
4. Diversity of the attendance and delivery of outreach events
5. Number of senior design projects supported and initiated by industry
6. Number of professional society events and meetings hosted
7. Number of contacts with alumni and friends (e.g. letters, newsletter, holiday cards, Alumni Day recognition, ABET alumni surveys, etc.)
8. Number of alumni and friends involved in CENG activities (e.g. assist in recruiting undergraduate students, present talks to students, serve on industrial advisory boards, serve as adjuncts, etc.)
9. Participation of industry leaders in CENG advisory boards
10. Donations to CENG – totals, by alumni, by corporations

Objective 3:

Our College will enhance its service to the professional community

Actions:

1. Organize short courses and certificate courses for industry
2. Offer on-line and/or evening graduate degrees that serve the needs of the DFW industry and their employees

Metrics:

1. Short courses, certificate courses and related activities
2. Number of students in said courses
3. Offering at least one graduate degree that serves the needs of the DFW industry and their employees

Goal 4: Operational effectiveness

VISION

Achieve operational excellence in support of teaching activities, research, and service to the University and the profession. Faculty and staff of Engineering collaborate more effectively with each other through a spirit of collegiality, friendliness, client-focused service, trust, mutual respect, and constructive communication.

TOP LEVEL GOAL:

Ensure that College activities are effective.

Excellent Engineering programs take optimal advantage of their resources. As resources we define space, equipment, time, and funds; as well as staff, permanent faculty, temporary faculty (e.g. adjuncts), and student support (hourly students, tutors, graders, TAs, TFs, RAs, etc.). The following are the strategies we will use to achieve this goal.

Objective 1:

Appropriate resources will be focused on the success of our educational mission

Actions:

1. Collaborate with Student Affairs to create a welcoming environment for our students in Innovation Hall
2. Collaborate with the Career Center to generate career opportunities for our students
3. Offer the opportunity of periodic training in management practices, client-centered, efficient, and effective services to the College advising staff, and to departmental staff who deal with students
4. Ensure that faculty who are less active in research contribute more heavily in our teaching mission, thus ensuring the most effective use of our teaching resources
5. Ensure that students have classrooms and class times appropriate for effective learning
6. Determine effective use of classrooms to ensure that students have the appropriate learning opportunities, and evaluate future needs for increases in number and size of classrooms
7. Provide the resources to ensure academic rigor and academic success for our student body
8. Be willing to experiment with new methods of course delivery
9. Create a position to monitor educational effectiveness by collating data (such as DFWI lists, exit surveys, persistor results, metrics listed below, etc.), summarize, and provide to departments, advising, and faculty and help units come up with plans that utilize this data to improve the educational experience and success of our students

Metrics:

1. Undergraduate student-per-advisor ratio

2. Undergraduate student-per-faculty ratio
3. Number of graduate students advised per faculty with research workload
4. Availability of peer tutoring, supplemental instruction, and other such peer mentoring programs
5. Number of Engineering internship opportunities posted by UNT Career Services
6. Number of students who participate in undergraduate research activities at UNT and elsewhere
7. Undergraduate retention rates per year (FTIC, freshman, sophomore, etc.)
8. Retention rates of undergraduate underrepresented students per year (FTIC, freshman, sophomore, etc.)
9. Six-year and four-year undergraduate graduation rates
10. Six-year and four-year graduation rates of underrepresented undergraduate students
11. Percentage of B.S. and B.A. graduates who have a job offer, start a business, or enter graduate school within 6 months of graduation
12. Retention rates of M.S. students per year
13. Retention rates of underrepresented M.S. students per year
14. Three-year graduation rates of M.S. students
15. Three-year graduation rates of underrepresented M.S. students
16. Average years to graduation for M.S. students
17. Average years to graduation for underrepresented M.S. students
18. Retention rates of Ph.D. students per year
19. Retention rates of underrepresented Ph.D. students per year
20. Six-year graduation rates of Ph.D. students
21. Six-year graduation rates of underrepresented Ph.D. students
22. Average years to graduation for Ph.D. students
23. Average years to graduation for underrepresented Ph.D. students
24. Number of graduate students advised per faculty with research workload

Objective 2:

Appropriate resources will be focused on the success of our research and scholarly missions

Actions:

1. Establish a single point of contact with the responsibility for facilitating solutions for all Engineering departments and the Office of Research Services (ORS)
2. Offer the opportunity of periodic training in management practices, client-centered, efficient, and effective services to the College research staff
3. Establish equipment depreciation schedule to ensure timely replacement of aging equipment

Metrics:

1. Competitive research awards per faculty
2. Competitive research expenditures per faculty

3. Average size of funding per research award per PI per year
4. Average size of successful proposal teams
5. Amount of internal funds used for repair, replacement, and renovation of facilities and equipment
6. Amount of external funds used for repair, replacement, and renovation of facilities and equipment

Objective 3:

Support a climate of respect between staff, faculty, and students

Actions:

1. Offer the opportunity of periodic training in management practices, client-centered, efficient, and effective services to all the College staff
2. Offer the opportunity of periodic training in management practices, client-centered, efficient, and effective services to all the College faculty
3. Provide transparency of financial expenditures to departments, faculty and staff that support the CENG strategic goals, including education, research, and scholarship
4. Establish anonymous surveys for faculty and staff to offer suggestion on how to improve interactions

Metrics:

1. Number of faculty attending appropriate training
2. Number of staff attending appropriate training
3. Results of faculty and staff survey on operational effectiveness, trust, and collegiality
4. Student exit surveys