

***EXECUTIVE SUMMARY OF
STRATEGIC PLAN FOR THE
UIC COLLEGE OF ENGINEERING
FOR 2010***

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EXECUTIVE SUMMARY

The UIC College of Engineering is recognized for its academic excellence with undergraduate and graduate programs in its six academic departments: Bioengineering, Chemical Engineering, Civil and Materials Engineering, Computer Science, Electrical and Computer Engineering, and Mechanical and Industrial Engineering. The College of Engineering has 114 faculty, 74 staff members, 1,684 undergraduate and 860 graduate students. About 39 of the College's faculty are Fellows of their societies, about 20 are National Science Foundation CAREER or Presidential Young Investigator Award winners, and more than 11 are Editors-in-Chief of major research journals. The research programs at the UIC College of Engineering have been growing rapidly over the years and are conducted in six departments and eight interdisciplinary centers. During 2003-04, the total research expenditure for the College was about \$21 million.

The specific objectives for the UIC COE over the next six years are:

- To support UIC's public university mission of Teaching, Research, and Service, for Illinois, the nation, and the Great Cities Commitment to Chicago;
- To recruit, promote, mentor and retain a faculty of world-leading quality;
- To attract the best undergraduate and graduate students into the school;
- To provide a relevant, exciting, high-quality undergraduate and graduate education that produces young engineers who are adaptable and flexible, as well as technically proficient;
- To train and place our students in the top industries, government agencies, and universities;
- To become recognized as a research school through high impact research, scholarly publications, and interdisciplinary research in emerging technologies;
- To have excellent ties to industries and government agencies in the form of research support, technology transfer and student placement;
- To have long term and fruitful relations with our alumni;
- Provide a world-class infrastructure of labs and classrooms, allowing top quality research and teaching to flourish;
- Assure that excellence and diversity are reflected in the faculty, staff, and student body.

The strategic plan is a clearly written document of where we are today, our strengths and weaknesses, specific objectives of where we want to be in 2010, and a clear roadmap of specific actions that need to be taken in order to achieve those objectives. The subsequent chapters describe various issues facing the college, namely, what we need to do in terms of faculty, research, undergraduate programs, graduate programs, professional programs, corporate and alumni relations, marketing and rankings, space and infrastructure, administration and staff, and financial planning. Table 1 summarizes the key elements of our strategic plan for 2010.

Table 1. Key Elements of the Strategic Plan for 2010.

Issues	Year 2004	Year 2010
Faculty size	114	130
Research Funding	\$21 million	\$40 million
Undergraduate Students Enrolled	1684	1900
Undergraduate students graduated per year	387 B.S.	450 B.S.
Graduate Student Enrolled	422 Ph.D, 438 MS, 860 total	600 Ph.D, 400 MS, 1000 total
Graduate students graduated per year	35 Ph.D., 300 M.S.	60 Ph.D., 200 M.S.
Space	267,000 sq ft	417,000 sq ft (including new building)
Staff	74	84
Alumni and Corporate Fund Raising	\$75 million total (\$5 million cash)	\$50 million total (\$38 million cash)
College Funding from State	\$16.7 million	\$18.2 million
Indirect Cost Funds from Research	30% ICR (\$2 million)	60% ICR (\$8 million)
US News Rankings of Engineering College	60	40

Specifically the strategic plan discusses the following issues:

- Faculty
- Research
- Undergraduate Program
- Graduate Program
- Professional Masters and International Programs
- Corporate and Alumni Relations
- Marketing and Rankings
- Space and Infrastructure
- Administration and Staff
- Financial Plan

The specific goals and objectives of each of these issues are summarized below by categories.

Faculty

The specific goals and objectives for 2010 for faculty are:

- Grow the total faculty size of the college to 130 faculty from its current 114 faculty positions.

- Hire three new faculty and three replacement faculty each year to add a total of 15 new and 15 replacement faculty through retirements and resignations
- Recruit faculty in clusters by growing selective areas of excellence
- Promote only the best faculty with national and international reputations
- Appoint four faculty as Chaired Professors
- Appoint 12 faculty with Professorships
- Have 75% of our Full Professors as Fellows of their societies such as IEEE, ASME, ASCE, ACM, AAAS.
- Have 50% of our Assistant Professors receive NSF CAREER awards by the time they are promoted to Associate Professorship
- Have 50% of our faculty on Program Committees of conferences each year
- Have 25% of our faculty on Editorships of major journals each year
- Have two faculty in the Membership of the National Academy of Engineering
- Have women and minority individuals comprise at least 10% of our faculty; 15% of the new hires should be women or minorities.

Research

The specific goals and objectives for 2010 for research are:

- Our faculty (size 114 in 2004 growing to 130 in 2010) should publish 500 journal papers and 500 conference papers per year in prestigious journals and conferences, an average of four journal papers and four conference papers per faculty per year.
- Our faculty should publish their papers in the top-ranked journals and conferences in their fields in order to have high impact.
- Our faculty should transfer technologies to industry by filing invention disclosures and patents
- Our faculty (size 114 in 2004 growing to 130 in 2010) should collectively bring in \$40 million in research funding by 2010, with an average of \$300,000 per year per faculty
- We will organize the research areas of the College into clusters of interdisciplinary research in the fields of Bio-technology, Nano-technology, Information Technology, and Infrastructure and Energy/Environmental Technology.
- We should submit at least five large interdisciplinary research proposals per year to agencies such as NSF, NIH, and DARPA at a funding level of greater than \$1 million per year per project
- We should get at least one large interdisciplinary research project funded per year by agencies such as NSF, NIH, and DARPA at a funding level of greater than \$1 million per year per project
- We should graduate 60 Ph.D.s per year at an average of 0.5 Ph.D. per faculty per year.

Undergraduate Program

The specific goals and objectives for 2010 for undergraduate programs are:

- Grow the total undergraduate student population of the college from its current 1684 students to 1900 students without lowering our standards for admission.
- Recruit high quality students to the engineering college; specifically, by 2010, we will increase the average ACT score of all incoming freshmen students from 25.8 to 27 and the average Projected Grade Point Average (PGPA) from 25 to 27
- Provide students with access to an exciting and relevant undergraduate curriculum in engineering.
- Increase the number of B.S. graduates per year from 387 to 450
- Increase graduation rates from 60% to 80% in the college.
- Make sure that average students can graduate in five years if they take a full course load every semester.
- Make sure that diversity is reflected in the student population; ensure that 20% of our students are members of minority groups; ensure that 30% of our students are women.
- Raise funding for 12 additional undergraduate scholarships in the College of Engineering

Graduate Program

The specific goals and objectives for 2010 for graduate programs are:

- Increase the total number of graduate students from 860 students to 1000 students
- Change the mix of students in favor of more Ph.D. students than M.S. students
- Target M.S. enrollment at 400
- Target Ph.D. enrollment at 600
- Ensure that M.S. students can graduate in two years if they take a full course load every semester
- Ensure that Ph.D. students can graduate in five years if they take a full course load every semester
- Increase M.S. graduation rates to 80% in the college
- Increase Ph.D. graduation rates to 75% in the college
- Decrease the number of M.S. graduates per year from 300 to 200
- Increase the number of Ph.D. graduates per year from 35 to 60
- Recruit high quality Ph.D. students with an average GRE score of 770/800 in quantitative, average score of 600/800 in verbal, and average score of 730/800 in analytical (suitably adjusted for the new analytical writing test with a scale from 0 to 6).
- Provide students with access to an exciting, relevant and interdisciplinary graduate curriculum in engineering
- Ensure that diversity is reflected in the student population. Ensure that 10% of our graduate students are minority; Ensure that 20% of our graduate students are women

- Raise funding for 12 additional graduate fellowships in the College of Engineering.

Professional and International Programs

The specific goals and objectives for 2010 for professional and international programs are:

- Deemphasize the current Master's of Engineering (MENG) program with internet courses
- Focus the energy on developing Professional Masters Programs with live instruction
- Master's in Bio-technology, Nano-technology, Information Technology, Infrastructure Technology
- Have at least 60 students in each program over two years
- Focus on strong international programs with a select set of universities
- Make the programs financially profitable

Corporate and Alumni Relations

The specific goals and objectives for 2010 for corporate and alumni relations are:

- Create an integrated office of Corporate Relations and Student Career Placement
- Work with the UIC Career placement office to ensure program consistency and leveraging of tools and activities.
- Target placement of UIC engineering students in top companies
- Evolve present Co-op/Internship program to be industry driven and fully Web-based.
- Actively promote Co-op/Internship program to achieve over 90% enrollment of qualifying students.
- Increase College of Engineering staff/capacity to support at least a 70% placement rate of the enrolled base in the Co-op program.
- Assist the career placement of undergraduate and graduate engineering students by more effectively bringing industry to UIC. Improve tracking and follow up of graduating students. Provide post graduation career service support to the engineering alumni base.
- Create an Industrial Advisory Board consisting of 24 members from companies, two from government agencies, four Deans of Engineering from other universities, and three Venture Capitalists
- Successfully raise \$50 million through fund raising from alumni, friends, and companies with the following breakdown.
 - Endowed Chairs \$8 million (Four chairs at \$2 million each)
 - Professorships \$6 million (12 total at \$500,000 each)
 - Graduate Fellowships \$3 million (12 total at \$250,000 each)
 - Undergraduate Fellowships \$1.8 million (12 total at \$150,000 each)
 - Research Funds \$2 million

- Facilities \$16 million (Classroom, lab renovation \$1 million; New building \$15 million)
- Annual Giving \$700,000
- Gift in kind \$12 million (Software and equipment donation)

Marketing and Rankings

The specific goals and objectives for 2010 for marketing and rankings are:

- Study the rankings of engineering colleges and departments in US News and World Report and evaluate the criteria
- Prepare marketing and communications materials (printed and electronic) for various constituents to improve the reputation of the College.
- Separate materials to be prepared for visitors, various Engineering Deans, various department Chairs across the country, prospective students, current undergraduate and graduate students, parents of current students, various companies, and federal agencies.
- Coordinate the development of a better Web page for the College and the various departments.
- Coordinate the development of various printed materials (Undergraduate Programs, Graduate Programs, Research Report, Alumni Magazine).
- Improve the overall graduate and undergraduate rankings of the College of Engineering of UIC in US News and World Report from the current 60 to 40

Space and Infrastructure

The specific goals and objectives for 2010 for space and infrastructure are:

- Allocate space among departments based on issues such as undergraduate and graduate student enrollment, faculty, and research expenditures.
- Improving the infrastructure of existing buildings in the COE, specifically the SEO building.
- Use of expanded space in Science and Engineering Lab (SEL) backfill when the College of Liberal Arts and Sciences vacates space in SEL when the new Advanced Chemical Technology building is built.
- Building a new 150,000 sq. ft. building for the College of Engineering called Institute for Nano- and Bio-technology
- Increase the total space for the College of Engineering from the current 267,000 sq. ft. to 417,000 sq. ft.

Administration and Staff

The specific goals and objectives for 2010 for administration and staff are:

- Provide resources to maintain efficient administrative and technical staff in the College of Engineering.
- Increase the total number of staff in the College of Engineering from 74 to 84.

- Provide competitive salaries for all staff in the College of Engineering to make the UIC salaries competitive with Big Ten Plus salaries.
- Improve the morale and effectiveness among the staff members.

Financial Plan

The specific goals and objectives for 2010 for finances for the teaching and research enterprise are:

- Making the College of Engineering financially self-sufficient
- Increase the state budget for the College of Engineering from \$16.7 million in 2004 to \$18.2 million in 2010
- Generating the extra state support of \$540,000 through increasing enrollment from 1684 undergraduates to 1900 and reimbursing the College about \$2500 per undergraduate student.
- Generating extra state support of \$860,000 through increase in differential tuition for engineering education from \$894 to \$1500 per student.
- Increase the total number of faculty in the College of Engineering from 114 to 130
- Increase the total number of Teaching Assistants in the College of Engineering from 115 to 130
- Increase the total number of staff in the College of Engineering from 74 to 84.
- Increasing the Indirect Cost Return (ICR) to the College of Engineering from current 30% to 60%
- Using the increased ICR return of \$8 million per year from proposed \$40 million research expenditures in College of Engineering to pay for 100% support of startup funds of new faculty, 100% support of all cost sharing of research grants, research lab renovations, seed funding of new research, and other support costs for the research enterprise.

Annual Review of the Plan

The strategic plan 2010 document will be a working document for the College for the next 5 years. We will review the progress and plan annually. We will make adjustments to the plan as we feel is necessary in order to adapt the plan to the changing conditions facing our college.