


The Process



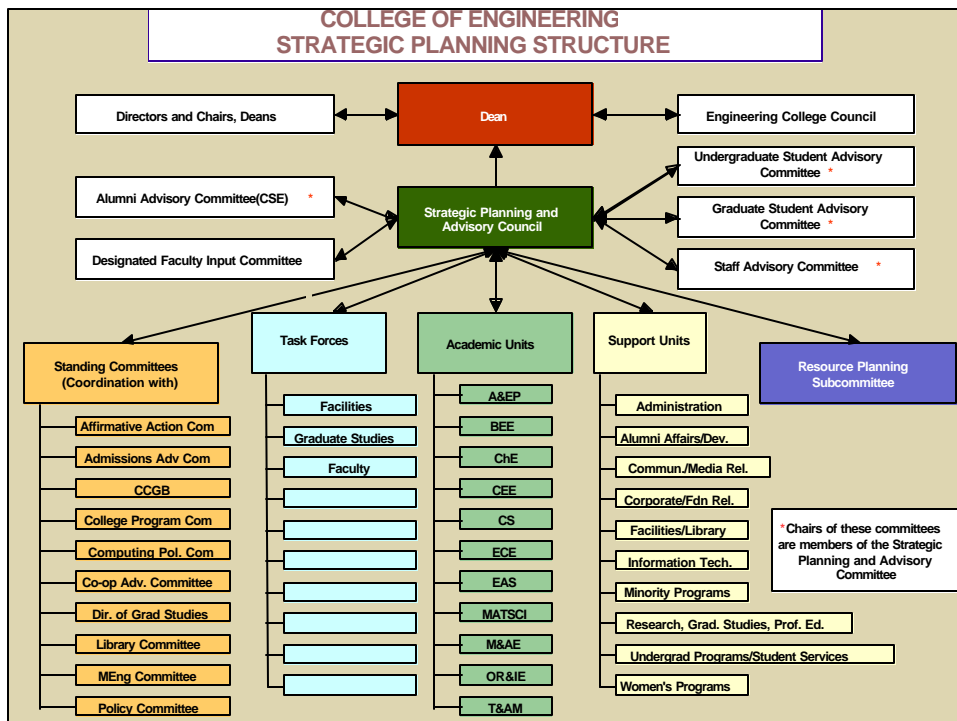
- ◆ In January 2003, the College of Engineering commenced a collaborative strategic planning process led by Dean Kent Fuchs with the assistance of Deborah Cox, Assistant Dean for Strategic Planning, Assessment and New Initiatives.
- ◆ To complete the first draft by September 2003,
- ◆ To present the draft to the college community in October and November and finalize the plan by December 2003, and
- ◆ To produce a brochure highlighting the most salient points of the strategic plan by early 2004

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A Strategic Planning and Advisory Council (SPAC)

- ◆ Made up of seven faculty and representatives from undergraduate student, graduate student, alumni, and staff constituency groups
- ◆ Responsible for the coordination of the planning process,
- ◆ The identification of college-wide priorities and metrics,
- ◆ The development of criteria to prioritize department strategic initiatives,
- ◆ The recommendation of the prioritization and funding of those initiatives,
- ◆ And the writing of the draft strategic plan.

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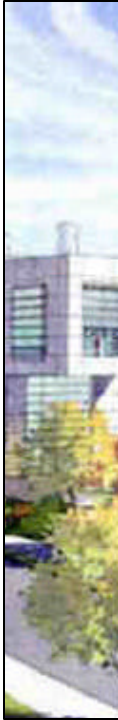


Committees



- ◆ Five advisory committees
- ◆ Four of these committees had representatives on the council
 - undergraduate student,
 - graduate student,
 - alumni and
 - staff.
- ◆ A Faculty Advisory Committee was also formed to review and provide feedback on draft documents.
 - chairs and directors
 - associate deans
 - center directors
 - faculty at all levels



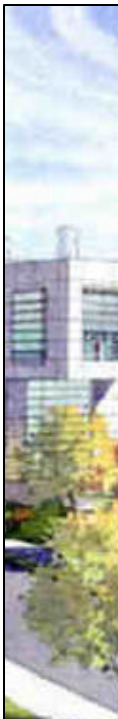


Task Forces



- ◆ In addition to the five advisory committees, the Strategic Planning and Advisory Council established three task forces
 - graduate studies,
 - faculty, and
 - facilities.
- ◆ Each task force was initially composed of four faculty members and a professional staff member with expertise and responsibility in the area of the task force charge.
- ◆ The task forces were charged with looking at issues in their area that cut across the college, and each submitted a report with recommendations on June 30, 2003.

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Department Input



- ◆ Concurrent with the development of their strategic plans, academic departments also developed facility plans and priority funding lists.
 - Strategic Plans to SPAC
 - Facilities Plans to the Facilities Task Force
- ◆ In preparation for the upcoming university capital campaign, academic units also submitted departmental priority funding lists.
- ◆ The academic unit strategic plans, facilities plans, and capital campaign funding priority lists were submitted on March 28, 2003

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Feedback



- ◆ Monthly presentations to academic department directors and chairs for discussion in June , July, and August.
- ◆ Prior to the release of the draft College Strategic Plan to the general college community, the plan was shared with the Faculty Advisory committee.
 - rewrite and reorganize
 - send to an editor
- ◆ In October and November 2003, the plan will be presented to College of Engineering faculty, staff, alumni, and students. Final changes made to the College Strategic Plan in December.

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Timeline



2003

- ◆ **January** Planning process commences.
- ◆ **March** SPAC formed. Departments submit their strategic plan, facilities plan, and funding priority lists.
- ◆ **September** Draft College Strategic Plan is completed.
- ◆ **October-
November** Draft College Strategic Plan is presented to faculty, staff, alumni, and students and feedback is gathered.
Production of brochure highlighting plan commences.
- ◆ **December** College Strategic Plan is edited to include community feedback. Final College Strategic Plan is completed and released.

2004

- ◆ **January-
February** Brochure is completed

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Table of Contents of the Plan



- ◆ Vision
- ◆ Mission
- ◆ Values
- ◆ Goals
- ◆ Our unique Characteristics and Strengths
- ◆ Emerging and Enabling Areas of Research
- ◆ Objectives, Strategies, and Metrics

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Table of Contents of the Plan Continued



Objectives, Strategies, and Metrics

- Community
- Faculty
- Facilities
- Graduate Studies
- Undergraduate Studies
- Staff

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Vision Statement



♦ *LEADING THE QUEST FOR A BETTER FUTURE**

Cornell University's College of Engineering is a rigorous, dynamic intellectual community in a renowned, research-intensive university. Through excellence in education, enterprising research, and exemplary service, the college contributes to the betterment of society. With each student who embraces learning, each discovery that expands knowledge and understanding, and each application that improves society, we lead the quest for a better future. *Place holder- we were *Shaping the Future*

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Mission Statement




The College of Engineering's mission is to:

- ♦ attract the finest engineering students in the world, educate them as broadly and well as we can, and prepare them to lead in an increasingly complex technological world.
- ♦ continue to lead with creativity, responsibility, and accountability in the quest for discovery and creation of new knowledge and the design, management, and control of systems, products, and processes.
- ♦ improve the future through the application of ideas and the commitment of resources to the betterment of society.

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Values

- 
- ◆ We are committed as a College to the following core values:
 1. To do all well, to excel at what really matters, and, in our best moments, to aspire to greatness;
 2. To be worthy of the great trust placed in us: honest in science, open in process, accountable in finance, honorable in relationship; and
 3. To treat all individuals with courtesy and respect: to judge without partiality, to critique without scorn, and to encourage without reserve.
 4. To value diversity and recognize that multiple perspectives enhance creativity


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Goals

- 
- GOAL 1:** To be considered one of the nation's top five engineering colleges in both our undergraduate and graduate programs.
 - GOAL 2:** To be the nation's premier research institution in advanced materials, information science, and nanotechnology and a leader in bioengineering, complex systems analysis, and energy and the environment.
 - GOAL 3:** To establish and maintain facilities and technical infrastructure that are second to none in supporting the achievement of our vision, mission, and values.
 - GOAL 4:** To educate future leaders who are among the most sought after engineering graduates in the nation and the world.
 - GOAL 5:** To attract and retain even better and more diverse faculty, students, and staff.

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Unique Characteristics and Strengths



- ◆ Reputation—rigor and academic excellence
- ◆ Exceptional faculty, students, staff, alumni
- ◆ Academic freedom, open discourse
- ◆ Interdisciplinary research and Centers
- ◆ Theoretically based programs balanced with hands-on learning
- ◆ Graduate field structure that fosters multi-disciplinary research

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Emerging and Enabling Areas of Research



◆ Enabling

Computational Science and Information Technology,

Advanced Materials, and

Complex Systems and Networks

◆ Emerging

Systems Biology and Biomedical Engineering,

Nanomaterials, Technologies, and Devices, and

Energy and the Environment

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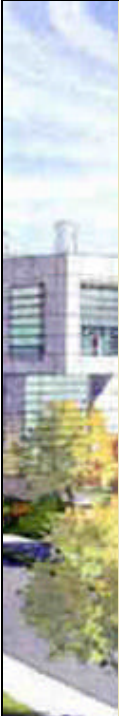


Emerging and Enabling Areas of Research




- ◆ Issues
 - “In addition to research in these areas, existing programs of established preeminence that support the College mission will continue to be strongly supported by the College.”
 - Big Science vs small science

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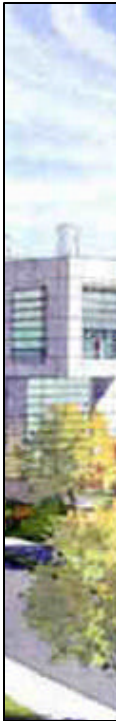



Community



- ◆ People create a better future
- ◆ Engineers and engineering professional opportunities are more diverse
- ◆ Focus on individual and group achievement, teamwork and leadership
- ◆ Collaborative learning and research
- ◆ Community space needed

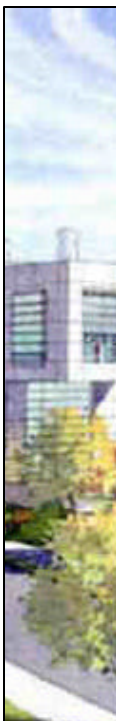

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| COLLEGE OF ENGINEERING STRATEGIC PLANNING BENCHMARKING DATA | | | | | | | |
|--|--------------------------------|--|----------------------------------|--------------------------------------|----------------------------------|------------------------|--|
| Institution | # of Full Time Faculty-US News | # of Full Time Undergrad Students-ASEE | # Full Time PhD Students-US News | '02 PhD Students per Faculty-US News | PhDs Granted in 2001-02- US News | NAE Membership-US News | School Research Expenditures in Millions-US News |
| 1 MIT | 351 | 1777 | 1295 | 3.7 | 229 | 13.4 | \$219.0 |
| 2 Stanford University | 193 | 712 | 972 | 5.0 | 191 | 17.1 | \$113.6 |
| 3 University of California-Berkeley | 243 | 3087 | 1295 | 5.3 | 170 | 20.6 | \$174.9 |
| 4 Univ. of Illinois-Urbana-Champaign | 405 | 5280 | 1594 | 3.9 | 194 | 3.7 | \$176.8 |
| 5 Georgia Institute of Technology | 449 | 4332 | 1778 | 4.0 | 188 | 4.7 | \$183.5 |
| 6 University of Michigan-Ann Arbor | 306 | 4604 | 1123 | 3.7 | 195 | 3.6 | \$130.2 |
| 7 California Institute of Technology | 94 | 357 | 472 | 5.0 | 52 | 13.8 | \$48.3 |
| 9 University of Texas-Austin | 233 | 4301 | 776 | 3.3 | 136 | 9.4 | \$98.7 |
| 11 Carnegie Mellon University | 190 | 1410 | 693 | 3.6 | 109 | 8.4 | \$101.4 |
| 11 Cornell* | 191 | 2888 | 675 | 3.5 | 73* | 7.9 | \$88.9 |
| * US News stats do not include EAS | | | | | | | |

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Faculty

- ◆ The number of undergraduate students per faculty at Cornell is about 14:1
 - second after Texas-Austin.
 - between 3 and 5 for MIT, Stanford, and CalTech and
 - higher than Illinois and Michigan.
- ◆ The ratio of Ph.D. students to faculty at Cornell is low.
- ◆ The number of Ph.D.s granted per year is low. It may take too long to get a Ph.D. in Engineering at Cornell.
- ◆ The percentage of faculty with NAE membership is low.
- ◆ The research dollars per faculty and total research dollars should be increased.

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Faculty Objectives



Objective A Decrease the undergraduate-faculty ratio from 14:1 to 12:1 and improve instructional delivery

- ◆ Increase the number of Faculty in the Engineering College by 30.
- ◆ Create 10 Endowed Instructional Enhancement Positions (Lecturers, skilled laboratory instructional staff and classroom technical support staff).

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Faculty Objectives



Objective B: Attract and retain diverse and excellent faculty

- ◆ Raise an endowment for faculty start-up funds.
- ◆ Establish a minimum start-up package for new assistant professors (including graduate student support and summer salary)
- ◆ Expand bridge funding for diverse faculty hires.
- ◆ Continue aggressive faculty pay practices.
- ◆ Create 6 Term chairs for recruitment and retention of strategic hires and 10 Endowed Professorships for retention of senior star faculty.

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Faculty Objectives

Objective B: Continued

- ◆ Create an endowment for a systematic way of providing cost-sharing on NSF, DOD and other proposals requiring significant matching dollars.
- ◆ Encourage the nomination of College of Engineering faculty for national and international awards including the NAE. Hold regular events to recognize those honored.
- ◆ Incorporate a faculty common room in the proposed College Learning, Library, and Service Center to promote research collaborations among members of different departments thus increasing the likelihood of serendipitous encounters between researchers working in diverse fields, and
- ◆ Support university-wide initiatives to reconstitute the University club

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Faculty Objectives

Objective C: Address dual careers

- ◆ Work with the central administration to establish a well-funded university level program.
- ◆ Develop a consortium of regional employer to assist in job placement of spouses/partners.

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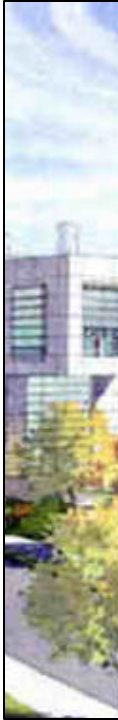
Facilities



- ◆ The College of Engineering is currently operating with an obsolete and obsolescent physical plant.
- ◆ Constructed in the 1950's, primarily as classroom space.
- ◆ 90% of the facilities do not meet the power, plumbing, cooling, exhaust, and communication network requirements to conduct modern research and instruction. Especially ill suited for emerging research needs.

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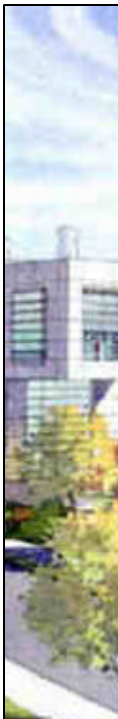


Facilities



- ◆ There is an immediate need for space in a number of overcrowded departments.
- ◆ The current needs in some departments (for example ECE) require immediate action. Even space freed up by new buildings will be inadequate to solve the needs of both departments.
- ◆ By converting existing space for research we have isolated undergraduates. We should integrate appropriate teaching space in research-dominated buildings.
- ◆ There is inadequate and inappropriate space for research.

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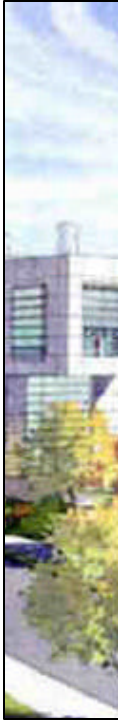


Facilities Continued



- ◆ Space needs of Interdisciplinary programs
 - Biology, Engineering, FCIS and Life Sciences.
- ◆ The Engineering Library is outdated and does not adequately support the learning and study requirements of modern instruction, such as
 - group projects, experiential learning,
 - presentations, and computing.
- ◆ Student services are dispersed, community space is sparse. Bringing it all together would improve climate, and help attract and retain a more diverse community.

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Facilities Objectives



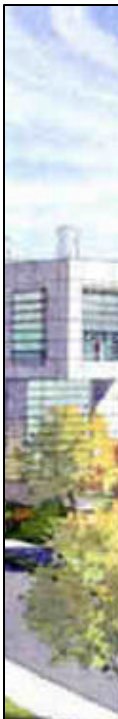
Objective A: Develop a long-rang facilities plan

- ◆ Develop a new Master Building plan including studies of proximity requirements and the need for a larger college footprint.

Objective B: Renovate existing facilities and infrastructure in the College

- ◆ Identify or build new space that will be used as swing space as existing buildings are renovated and provide the college with flexibility of accommodation in the future.
Renovate the interior, exterior, mechanical, and information infrastructure of existing facilities.
- ◆ Renovate department/school student lounges to make them vibrant centers of academic and social interaction.

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Facilities Objectives



Objective C: Create a College Learning, Library and Service Center for Students, Faculty and Staff

Objective D: Provide more research and instructional space for ECE, CS, MAE, and ORIE

- ◆ Construct a new building for Computer and Information Engineering and Science and reallocate and renovate Rhodes Hall and Upton Hall.
- ◆ Expand ECE space in the renovation process

Objective E: Provide new and decompression laboratory, research, and instructional space for CBE, ECE, MAE, and MSE

- ◆ Construct a new laboratory space

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Facilities Objectives



Objective F: Provide space for the Biomedical Engineering and Biophysics programs

- ◆ Contribute to the New Life Sciences Technology Building
or
- ◆ Provide separate space for the BioMedical Engineering if it can not be accommodated in the New Life Sciences Technology Building

Objective G: Provide space for the Applied and Engineering Physics

- ◆ Contribute to the New Physical Sciences Building

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Graduate Studies



- ◆ The Graduate Program Task Force (composition primarily of faculty) was charged to review graduate education and professional studies in the college with a focus on improving quality and rankings of these programs.
- ◆ The Graduate Student Strategic Planning Committee (composition primarily of graduate students) was established to identify opportunities to improve the quality and impact of their graduate education.

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Graduate Studies – M. Eng



- ◆ Our ranking would be higher if we had a more selective MEng program (selective in terms of GRE scores required and the acceptance rate).
- ◆ In departments with large MEng programs the teaching and learning experience would be improved by having fewer more qualified MEng students.
- ◆ Large MEng programs are in competition with a large undergraduate enrollment and a desire to have more PhD students.
- ◆ Some fields would reduce the number of MEng students if department financing were adequate.
- ◆ The council recommends that the current MEng financial model be discontinued.

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Graduate Studies Objectives



Objective A: Increase the number of Ph.D. students and the number of PhD students per faculty

- ◆ Increase the number of Faculty in the Engineering College by 30.
- ◆ Increase the number of PhD fellowships available with an emphasis on fellowships for URMs and women.
- ◆ Increase resources for TA support throughout the College.

Objective B: Improve the infrastructure to support graduate students of all levels

- ◆ Implement workshops for professional development.
- ◆ Create a website dedicated to communication to and communication among graduate students about life in the Engineering College, responsibilities and expectations.
- ◆ Improve the physical work environment and providing space for graduate student events.

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Graduate Studies Objectives




Objective C: Improve the graduate student experience especially in terms of diversity and community

- ◆ Implement town meetings where graduate students can express opinion on any matter to a receptive audience of professors and staff.
- ◆ Improve faculty and graduate student diversity.
- ◆ Implement a web-based exit interview process specially designed for students of different degree levels.


Objective D: Increase the selectivity of the MEng program

- ◆ Obtain funds to adequately finance department operation so that the current method of allocation of resources (M. Eng. Financial model) can be discontinued and decisions on the size of MEng program by department can be made independent of financial pressures.

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Undergraduate Studies




- ◆ Changing demographics
- ◆ Changing paradigm – nontraditional careers
- ◆ Focus on relationships
- ◆ Retention, elimination of excessive student competition
- ◆ Group work and experiential learning
- ◆ Facilities and infrastructure
- ◆ International study and work (Internship and Coop)

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Undergraduate Studies Objectives




Objective A: Become a leader in the education of women and under-represented minority engineers

- ◆ Increase the diversity of the undergraduate student body to 35% women and 10% underrepresented minority students.
- ◆ Increase the graduation rates of women and URM students to equal those of White/Asian students through stronger outreach, recruitment, financial aid, and retention initiatives.
- ◆ Increase faculty diversity.


Objective B: Improve the engineering undergraduate curriculum

- ◆ Conduct a comprehensive review of the curriculum to simplify requirements, ensure it is current, accommodate emerging areas, and provide students with flexibility to pursue breadth in their studies and extra-/co-curricular experiences (internships, Coop, international study etc.)
- ◆ Enhance the cultural, societal, ethical, environmental, and international focus of engineering courses .

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Undergraduate Studies Objectives



Objective C: Improve the undergraduate educational environment and experience

- Review the undergraduate workload, class sizes, and affiliation process to determine if they are appropriate.
- Provide opportunities for all undergraduate students to experience hands-on learning by participating on a design or research team and recognize faculty leadership of these teams.
- Develop international study and work (Internship and Coop) programs and increasing the number of students participating in them from 2% to 10%.
- Institute programs that support diverse learning styles, reduce excessive student competition, improve the quality of teaching, and encourage the use of innovative teaching strategies

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Staff Objectives



Objective A: Increase the job satisfaction and retention of staff with the experience, skills and professionalism to attain College Goals

- ◆ Provide staff with high quality facilities, equipment and software.
- ◆ Endow the college assistant deanships (administration, alumni affairs and development, strategic planning, assessment and new initiatives, and student services).
- ◆ Set reasonable workloads and regularly evaluate them during times of change.

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Staff Objectives



Objective A: Continued

- ◆ Implement an ongoing college evaluation process to improve work and cost efficiency, consistency, and productivity- including identification of best practices; review of work cycles and coordination of resources; elimination of duplicate and valueless work; and clear communication of changes in policy and process.
- ◆ Conduct regular exit interviews and retention analysis, and address retention issues.
- ◆ Reward excellence in innovation, leadership, initiative, efficiency, and productivity through continued efforts to improve merit based staff pay and through the development of other pecuniary and non-pecuniary recognition and reward programs.

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Staff Objectives



Objective B: Improve the work climate

- ◆ Develop and articulating a Statement of Workplace Values that acknowledges staff members as full partners in the success of the college and is adopted across the college.
- ◆ Implement a new employee orientation program that is consistent college wide.
- ◆ Support work-life balance through the application of Flexible Policies (Flexplace, Flextime, job sharing), stress management training, and attendance at University health-related events and programs to support a healthy workforce.
- ◆ Sponsor events and programs that bring together all members of the community.
- ◆ Provide community space and eating facilities on the Engineering Quad

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Staff Objectives



Objective C: Improve the quality and diversity of our staff through continuous professional development and enhanced recruitment

- ◆ Develop a college level staff diversity plan and a process for continuously updating it and evaluating progress towards its goals.
- ◆ Train search committees in processes and techniques to improve the quality and diversity of the applicant pool and hiring decisions.
- ◆ Communicate Cornell's *Staff Skills for Success* and offer staff the opportunity to attain the skills, experience and training required to develop professionally.

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