

**College of Engineering  
Engineering College Council  
Minutes**

**October 26-27, 2005**

Note: The PowerPoint presentations, advance material, and agenda for the fall 2005 ECC meeting are available on the web at:

[www.engineering.cornell.edu/ecc/](http://www.engineering.cornell.edu/ecc/)

Login: fall2005

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The Engineering College Council (ECC) met in Ithaca on October 26 and 27, 2005. The following ECC members were present:

Elizabeth Altman (by phone)  
Richard Aubrecht  
James Becker  
Charles S. Brown  
Jay W. Carter  
Mei-Wei Cheng  
Tim Costello  
Robert A. Cowie

W. Kent Fuchs  
Donald P. Giddens  
James N. Hauslein  
James M. McCormick  
Rebecca B. Robertson  
William R. Shreve  
Jan H. Suwinski  
Evelyn Taylor

**Chairs Welcome**

Bill Shreve opened the meeting by introducing James Becker, Mei-Wei Cheng, and Donald Giddens, new members of the ECC. Robert W. Shaw Jr. and Padmasree Warrior were also introduced as new members but they were not in attendance.

**Dean's Highlights**

Kent Fuchs welcomed the new members, introduced the Deans and Directors who were at the meeting and announced:

- The college core metrics have been provided on the web site and in hard copy in the ECC packets.
- The search for the new Cornell President is well underway and an announcement is anticipated in January or February 2006.

**Capital Campaign – Laurie Robinson, Director of Development**

Laurie Robinson, Director of Development, presented an overview of the capital campaign planning. The previous university campaigns were held in 1975-80 and 1990-95. The goal of the last campaign was 1.5 billion and the goal of this campaign is 3.9 billion. The current campaign is in the nucleus phase, a quiet phase prior to the public kickoff. The public phase of the campaign is tentatively scheduled to start in October 2006.

The goal of the campaign is to at least sustain, but hopefully increase, giving. The current alumni demographics show that the opportunity for improvement in the tracked donor pool lies primarily with the classes of the 70s and 80s.

The university is currently finalizing the goals and the financial plan for the campaign. Case statements are being developed for the university, the colleges, and for individual proposals. Once that step is finalized, the ability to raise the funds will be tested compared to the campaign needs (feasibility analysis).

### **Discussion**

Jay Carter asked, “If the goal of the campaign is 3.9 billion, what will that do to our relative position compared to our peers?”

Our peers are also kicking off campaigns (Yale, Princeton) or just finishing campaigns. Their endowments are very large and at best we can expect to gain ground or, at a minimum, hold ground compared to them.

Mei-Wei Cheng commented that increasing the college goals from \$32 million to \$100 million is a three fold increase that requires the college and university to do something different in order to reach the goal. He asked, “Have you looked at best practices – different ways to approach the campaign?”

We do look at what our peers, Harvard, Princeton, and Yale, do but we need to do a better job of focusing on 9 figure gifts. These are transformational gifts. Currently 6.7 cents on the dollar is invested in fund raising. With more invested we would increase our capability. Our peers invest four times more in their development efforts.

Rebecca Robertson queried, “Based on the giving record in the 70s, 80s, and 90s, how does Cornell’s profile compare to other peer universities?”

We are very competitive compared to our peers. Our participation rate has grown from 22% to 36%. All institutions have a similar challenge with the classes of the 70s and 80s.

Charles Brown commented that he heard that the Viet Nam era classes when compared to other classes were underperformers. He asked, “Is that true?”

It has been true, but it is getting less so. That generation is turning around and will be a focus of this campaign.

Brown noted that it is critically important because these alumni are reaching the age of maximum contribution and this is the campaign for them.

Kent Fuchs emphasized that the campaign is very important to the College of Engineering. Our goals are the most ambitious of any of the colleges. We have requested \$700 million in priority needs plus additional funds in support of renovations for a total of almost \$100 million. The renovation funds are not included in the base goal

because it is unlikely that we can raise funds through the campaign for that purpose, therefore, some indirect fund raising will be necessary.

The majority of the investment will be in the area of facilities:

1. Finishing the funding and fit-out of Duffield Hall,
2. Building the Life Sciences Technology building which will house Biomedical Engineering - \$150M,
3. Building the Physical Sciences Building, and
4. Gaining approval to build a new Information Sciences building. If approved it will house Computer Science and Operations Research and Industrial Engineering thus freeing up space for other departments.

Funding faculty positions is also a priority. The Biomedical Engineering Department newsletter is in your packet. We have requested that \$100M be raised in the capital campaign to support BME. Currently we are hiring faculty by borrowing against this fund raising capability.

The Engineering College Councils can be helpful in the campaign in the following ways:

1. Providing feedback regarding the draft university and college case statements,
2. Participating in the Spring 06 ECC meeting where the college funding priorities, case statement, and strategic plan will be discussed, and
3. Some of you will be asked to help identify donor prospects.

Prior to this meeting Bill Shreve asked how the college giving levels compared to the university levels. The College of Engineering alumni are giving at slightly higher levels than the overall university alumni. We still have room for improvement though. 62% of the college alumni are not giving, 39% give at any level, and 2.45% give at the Tower Club level (\$6K or above).

Robert Cowie noted that to reach the university goal of 3.9 billion dollars over the next three years, we would have to raise \$20M per day!

### **The Future of Engineering Education**

Kent Fuchs set the context for the discussion of the Educating the Engineer of 2020 book produced by the National Academy of Engineering. The book represents phase II of the Engineering 2020 Project. The discussion today will focus on the recommendations in Chapter 5. These recommendations have been discussed in the National Academy, by the National Science Board, and at the Engineering Deans meeting. There are some recommendations that the deans do not agree with and some that were added to the report without the knowledge of the authors.

Additional questions that are also being asked as we consider the future of engineering education include:

1. How many students should we graduate?
2. What is the need for investment in research and K-12 education?

3. The federal budget in support of engineering has been stable for the last 10 years and predictions are that it will decline this year. How can we influence Washington's support of engineering?

Overall the number of students graduating with an engineering degree since 1974 has increased. In the College of Engineering, however, we have decided to hold the size of the undergraduate student body steady at 2,800 students. We admit 710 students each year, transfer in 50-60 students annually, and graduate 700 per year.

Our Master of Engineering program enrollment is also steady at about 400-450 students per year. We are focusing, however, on growing the PhD program from about 100 graduates each year to 130.

The 3-2-1 formula in our Strategic Plan has not been uniformly embraced by all faculty. Some do not think graduating one PhD student per year per faculty is feasible. Nevertheless, the goal remains for each faculty member to graduate 3 undergraduates, 2 MEng students, and 1 PhD student per year. We currently have about 220 faculty so in order to achieve this goal we would have to double the number of PhD degrees we award by:

- Increasing our research funding,
- Developing creative ways to grow the research faculty,
- Increasing fellowship and scholarship support, and
- Decreasing the time to a PhD degree.

### **Discussion**

Rebecca Robertson commented that she was under the impression that the number of engineering graduates was going down. She wondered if that was true.

The number of engineering graduates is staying fairly steady in the U.S. but the number of graduates in other countries is growing.

James Becker asked, "Did the Master of Engineering program change the master's trends nationally?"

No, many of our peers don't have a similar MEng program. I don't think the MEng significantly impacted master's degree trends.

James Hauslein asked, "Why do we want to graduate more PhDs?"

We graduate fewer than our top ten peers and the number is important. It impacts our research reputation and our rankings. In some fields we don't need more PhDs but in others we do.

If we look at the Engineering Workforce Trends data on the occupation of engineering graduates you will find that 2.8 engineers graduate, of those 1.5 million are employed in a job other than engineering, and 1.3 million are employed as engineers.

In addition to this leakage, the national retention rate of students in engineering is low. This is not true at Cornell. In the College of Engineering on average 80% of our students graduate within five years with a degree in engineering and approximately 90% of students who were originally admitted into engineering will graduate with a degree from Cornell.

Kent focused the discussion on recommendations 1, 2 and 6.

**“1. The baccalaureate degree should be recognized as the “pre-engineering” degree or bachelor of arts in engineering degree, depending on the course content and reflecting the career aspirations of students.”**

**“2. ABET should allow accreditation of engineering programs of the same name at the baccalaureate and graduate levels in the same department to recognize that education through a “professional” master’s degree produces an AME, an accredited “master” engineering.”**

Richard Aubrecht said that he was taken back by recommendation #1. He said that this recommendation was moving towards a general engineering degree. He suggested that both a general engineering degree and a specialized engineering degree be offered.

Mei-Wei Cheng questioned, “What did my education prepare me for? I didn’t use anything that I learned in my engineering courses.” He suggested that there be two tracks – one for research and design (technical) and one for engineering management – and noted that a general engineering degree allows more flexibility when looking for a job.

Jan Suwinski noted that 48% of our students go to work directly after earning the BS degree. He said that he was concerned about the marketing of “pre-engineering”. If our peers don’t follow the same approach, we would be at a disadvantage. He summarized by saying that he agreed with Aubrecht and Cheng.

Bill Shreve commented that “pre-engineering” would push higher level engineering work into the post BS degree (MS or MEng) and would make the MEng degree a 2 year program.

Kent Fuchs remarked that other professions required more than 4 years. The BA in Architecture, for instance, takes five years to complete and if the student goes on for the MArc, it takes an additional three years.

Jay Carter asked, “Doesn’t Architecture have significant retention issues?”

James Becker stated that he disagreed with recommendations 1 and 2 and noted that they were written in an inflammatory style. He said that the perspective of these two recommendations may differ depending on the discipline. In Civil Engineering accreditation is more important than in any other discipline. SCE believes that the MS

should be the accredited degree. Civil Engineering is a dying professional unless it changes because it is being driven to the technical level. CE needs to engage in political and societal issues and there needs to be a real substantive debate linked to the future of the CE field. The undergraduate degree is a bachelors of science and engineering and there are significant differences between public and private schools.

Rebecca Robertson asked, “Why would you not want both the BS and MS degrees accredited?”

James Becker answered that schools seem to have one focus.

Don Giddens again pointed out the differences in fields. Graduates from some fields don’t get PE licenses. The issue really is one of imposing the desires of one discipline on another. Accreditation at the MS level would inhibit interdisciplinary study and our ability to attract international students. Additionally there would be a workload issue – assessment with diminishing returns. If both degrees are accredited, than peers will feel compelled to participate.

Kent Fuchs added that some of our MEng degrees don’t have an equivalent BS program and some states require that programs that can be accredited seek accreditation.

Ed Cranch explained that the original resistance to accreditation at the graduate level was that deans didn’t want the ABET wedge in their graduate programs. ABET has a limited standing vies a vie the overall work of the university and engineering. Other professional programs have moved toward accreditation at the graduate level (pharmacy, teaching, law, business). Engineering is lagging in this area.

Mei-Wei Cheng asked, “Is licensing the real issue?”

James Becker questioned, “Why in recommendation #1 did they call it the Bachelor of Arts instead of BS?”

Don Giddens said he wasn’t sure.

Kent Fuchs added that he thought they meant to imply a degree with more of a liberal arts focus. Kent moved forward to say that he thought that the ECC could agree with recommendations 3, 4 and 5 which endorse innovation, creativity and research linked to education. He mentioned that two universities, Virginia Tech and Purdue, have created Engineering Education departments.

**“6. Colleges and universities should develop new standards for faculty qualifications, appointments, and expectations, for example, to require experience as a practicing engineer, and should create or adapt development programs to support the professional growth of engineering faculty.”**

Jay Carter noted that the expectation for a practicing engineer may not be orthogonal to the emphasis on research. He said that the Hotel school is even shifting away from the practical to a research focus.

James Becker asked, “How much shift has there been from federal funds to corporate funds?”

Kent answered that there hasn’t been an increase in corporate funds. 75% of our funding comes from federal sources and the remaining 25% comes from individuals and other funds.

Rebecca Robertson noted that she was surprised to hear that since there had been dramatic movement in biotech corporate funding.

Bill Shreve stated that the recommendation was totally inappropriate and was moving programs to be too applied. He asked, “Who would be left to do the basic research?” He summarized that he supports the growth of the faculty and added that Cornell is a research and teaching institution vs. a teaching only school. Perhaps this recommendation could be applied differently at teaching schools.

Rebecca Robertson and Evelyn Taylor both said that they could support the recommendation if it didn’t mean that every faculty member had to be a practicing engineer.

William Aubrecht said that he disagreed. It is unrealistic to expect that a student would finish a PhD and then spend 2-3 years in industry before pursuing an academic career. The opportunity for industry experience lies in sabbatics.

James Becker noted that practicing engineers were beneficial in Civil Engineering.

The discussion refocused on recommendations 1 and 2 again:

Mei-Wei Cheng said that the “pre-engineering” degree was antithetical to the goal of attracting more US students to engineering but that the idea of two engineering tracks might attract more students.

Tim Costello noted that there are not many BS engineering graduates that go directly into engineering management without practice. Even with an advanced degree experience is necessary. He has found that four years of engineering plus an MBA (without any experience) is not an appropriate foundation for a management position.

James Becker asked, “Would the curriculum look different without accreditation? Is accreditation helpful or a set of handcuffs?” This is the real debate plus the discussion between the dichotomies of private versus public institutions.

Jan Suwinski asked, “What happens next with the recommendations?”

Kent answered that the book wouldn't change but that the engineering deans would discuss the recommendations and influence their implementation. The recommendations have the potential to influence curriculum and investments.

Don Giddens added that it is good that the book causes a national discussion and analysis of how we are educating students.

**Curriculum Transformation Discussion** – David Gries, Paulette Clancy, Sidney Leibovich, Clifford Pollock

David Gries started by reviewing the Synopsis of the Report of the Committee on Curriculum Transformation.

James Hauslein said that several years ago the ECC had breakout sessions in which they discussed the curriculum and they found that the curriculum in the late 90s was more restrictive than in the 80s. He commended the desire to transform the curriculum but wondered how it will happen. Is there a true commitment? He also noted that it was not mutually exclusive to maintain rigor and increase flexibility. He observed that in the 80s the dean controlled the courses and now this control has transitioned to department heads. The result is that some departments are more restrictive than others. This has been a theme for the last 15 years. What is going to change?

Sid Leibovich answered that there will be push back from some faculty and departments. Faculty are not yet aware of this report. The ECC is seeing it before it is released to the college faculty. In the past the college had a common curriculum but over the last 20 years the majors have agreed less and less on what is common to engineering and more authority has been given to majors to include requirements early in the curriculum.

Paulette Clancy added that no one wants to sacrifice rigor. This report is in an early stage. She also expressed her opposition to the NAE recommendation that the bachelor's level degree be considered "pre-engineering".

Jan Suwinski commented that one point that comes out of the survey is that the students think the curriculum is too tough and too stressful. Has the committee taken a stand on those issues as a boundary condition?

David Gries responded that you can have the same rigor but if the environment is different the students won't feel so stressed. For example a group activity or design project in the first year would help.

Paulette cautioned that we all need to be careful how we interpret the survey.

Rebecca Robertson added that not all stress is bad.



James Becker suggested that providing context for students was a good way to get the students to buy into the rigor. He liked the fact that learning differences were included as a consideration and applauded the committee for trying to work on pedagogy.

Bill Shreve liked the idea of a two semester freshman engineering course. He wondered if the course could be offered broadly to other students in the university. Doing so would improve the diversity in the class and introduce others to scientific methods.

Charles Brown shared that he thought the concept of the two semester class was outstanding, would help with the retention of students, and would help students understand what engineering is all about.

Jay Carter suggested that the themes of the two semester course could relate to the three major priorities of the university. This approach would reinforce the interdisciplinary nature of the course and collaboration across campus.

Robert Cowie observed that the Engineering Introduction (ENGRI) courses were designed to do what the two semester course proposes. He asked, “Why is this course better?”

David Gries responded that the ENGRI courses have become introductions to a major and don’t provide breadth.

Sid Leibovich added that the ENGRI courses don’t give students an opportunity for teamwork either.

Richard Aubrecht asked the committee to say more about the communications aspect of the proposed two semester course. He wanted to ensure that communications was incorporated in the course since a freshman writing course would be eliminated.

Paulette Clancy answered that it is the intention of the committee to have communications integrated into the course. The committee would like to see more writing throughout the curriculum.

Rebecca Robertson commented that she was struck by how a similar approach is being pursued by many progressive K-12 schools. She applauded what the committee was proposing and stated that breadth in engineering is as important as breadth in science. She suggested the committee look at how they do assessment: how they will track the success of the changes, and how they will alleviate student stress.

Evelyn Taylor expressed her agreement that these were great recommendations. She asked if the committee had thought about how to integrate economics into the course and give physics and calculus more context as an introduction to higher level interdisciplinary work.

Clif explained that the committee would like to see those things incorporated by the faculty. He admitted that is a weakness of ours. We must make stronger connections to related issues in engineering courses.

Rebecca Robertson asked, “Is there an opportunity to do education about education?”

David Gries stated that the college was working on teaching excellence as an important part of curriculum transformation. Several workshops have been held in the last year and more are being planned.

Mei-Wei Cheng agreed that the direction and approach were “right on” and that breadth and flexibility were important. International engineers will look at the U.S. best practices and apply them to their emerging countries. He asked, “How do we address those issues in the engineering curriculum and ensure that they are sustainable down the road?”

James McCormick asked if we were thinking enough about it from the freshman perspective. The curriculum is a means to an end. “What is the end?”, and “Are we helping the freshman grapple with this question?” He drew the following matrix as a way of thinking about the choices students have to make prior to affiliation:

<b>Student Career Interest</b>	<b>Program A</b>	<b>Program B</b>	<b>Program C</b>	<b>Other</b>
Funded Research				
Industry				
Engineering Management				
Technical Problem Solving				
Other				

How will the curriculum adapt to the choice of careers and programs?

Paulette said that we should teach the fundamentals and not let students choose their major early on. She views the students as stem cells – they could become anything. Teaching design elements to freshman will help them relate the fundamentals to more advanced engineering courses.

Tim Costello emphasized that breadth is great. He suggested that we make the students want to learn rather than have to learn – convince them of the value of the quest for knowledge as a purpose and a means of impacting society. He cautioned that the two semester course may have unintended consequences:

1. Multidisciplinary – Who will be accountable for the success of the course? How will success be measured?
2. Large class size – The course will move from small ENGRI courses to large classes that are impersonal.
3. Topical risk – There is a risk of the popularity of a topic in any given year. The topic may sway student’s choice of major. To help avoid this, several topical sessions should be developed.

David Gries assured the ECC that the ENGRI instructors would be used to teach the new course and the class size would be about 25 students /class.

Charles VanLoan opined that the proposal was restrictive. The Freshman Writing Seminar is taken university wide and offers a course in a small setting that gives engineering students a chance to intermingle with students from other colleges. Reducing this course from two to one semester is a mistake – Arts writing courses are a good value. He also stated that he thought that some of the ENGRI courses were fantastic (For example, Duncan and Sache’s courses) and if the college put resources in to the ENGRI courses they could achieve the same effect. The ENGRI courses include design but an expanded menu is needed. We should exploit our great neighbor the Arts College.

Mike Shuler emphasized that students select Cornell engineering because of our connection with the humanities and we should preserve it.

Sid Leibovich answered that it is not true that the FWS is taken university wide. Freshmen have been disappointed by the FWS and students in the current ENGRI courses don’t have a uniform or broad experience.

David Gries reiterated that the proposal is not throwing out communications. The Engineering Communications Program staff would help design the writing and communication component of the proposed new course.

Don Giddens shared that it is important to get broad exposure to engineering. He liked the example of the water resources topic. He suggested that the committee think of:

1. The time required to do this well – the time faculty and students will need to devote to the course.
2. Ask the question, “How does the student learn to use the experiential learning experience and take it forward as part of their overall education?”

Jim Hauslein asked the committee to consider:

1. How to embody the goals of the recommendations without conflicting with the current curriculum.
2. Changing course requirements to accommodate study abroad might be too constraining. Work and summer study should be considered.
3. The current curriculum is too inflexible to allow courses from outside of engineering. Weave into the junior or senior years some survey courses with law, management (JGSM or AEM) or other Cornell resources.

Richard Aubrecht added that schools all over the world are thinking about international education and experience. English is the common language in industry. He asked, “How do you deal with the language skills needed for study abroad? How do you ensure that the curriculum and the institutional schedules match?” He suggested that the model be changed to a summer program developed by a consortium of schools around the world.

The consortium could develop a sequence of projects and offer them all over the world to students who would work on a common problem during the summer.

Ed Cranch defined several main points to consider:

1. With a common freshman course, accountability and sustainability are important issues. Interdisciplinary initiatives erode over time.
2. I agree that you need to renew the curriculum and try a new departure. The menu aspect is important so that you appeal to a wide variety of interests. Having a design component in each freshman course separates the engineering mind (logical thought) from others.
3. I recommend a project based approach to internationalization so that the course requirements are not so closely coupled to the opportunity. Worcester Polytechnic Institute has an extensive international program that is project based. To do this well, you need overseas bases. Alumni respond positively to this and projects are diverse. Think beyond a semester abroad – It is too costly to rely on semesters abroad.
4. There is the potential for university wide enlightenment about engineering. It would separate us from our peers to have students outside engineering participate in the engineering experience. The Sloan Foundation experience in the 1980s provides the basis for the practical experience dimension of engineering education. Ultimately the project failed because they didn't use engineering faculty, but the content could be resurrected. Smith College has also done this well.

James Becker shared that Stanford has problem solving teams working internationally in real time. In a freshman course students could share their expertise. All students wouldn't need to have advanced calculus. This shared expertise would provide a richer environment.

Tim Costello pointed out that students have a real interest in service projects. Cornell could establish an International Service Project that would take place in the summer and support it with scholarships.

Charles Brown expressed his opinion that the value of an "in culture" experience is high but may not be achievable for all. He encouraged the committee to think about virtual teams, video/audio conferences, and the use of the web to facilitate international interaction.

Rebecca Robertson referred to the California schools business plan competition as a model. Undergraduates participate in projects in which they write a business plan with the potential to be funded.

Jim Hauslein said that Queens College in Canada also has an excellent Distance Learning Studio.

Bill Shreve noted that through the project focus you can develop a greater understanding of engineering. Teams demonstrate engineers solving tough problems.

### **Master of Engineering Review – Michael Spencer and Peter Jackson**

Mike Spencer summarized the process that had been used to review the MEng program:

1. Departments conducted Self Studies.
2. In April 05 the ECC met with Department Directors/Chairs in breakout groups and discussed the Self Study recommendations.
3. An MEng Review Committee was established and they used the Self Study Reports plus additional existing data to evaluate the program and write a report.
4. The MEng Review Committee's Final Report and Executive Summary were posted to the ECC web site.
5. The next steps will be faculty discussion and the development of an action plan.

Peter Jackson spoke on behalf of the MEng Review Committee (MERC). The good news is that the MEng Program is in excellent health. The Committee worked over the summer to determine the MEng trends, challenges and unresolved issues.

The value of the MEng program is:

1. An education in the practical arts,
2. Increased knowledge and development prior to starting a career,
3. Higher starting salaries,
4. Faculty engaged in practical engineering problem solving,
5. Department income,
6. Increased numbers of, and more knowledgeable, TAs to help with undergraduate courses,
7. A critical mass of students in 500 level courses which also enrich undergraduate education, and
8. An enhanced university and college reputation.

The MERC also looked at the program audience. Two thirds of the students come from outside of Cornell. The 1/3 of the students who have a Cornell BS add value to the college because they are excellent TAs having recently taken the UG courses. The students who come from other institutions can't step into the TA slots with the same value as those who have just completed the Cornell engineering BS program.

James Hauslein noted that the joint MEng/MBA program had very few students in it because JGSM required MBA students to have 2-3 years experience before starting the program. They are rethinking this and would like more engineering students in the program.

Peter Jackson went on to say that the most significant recommendation MERC made was to allow the elimination of the MEng project at the option of the individual field. Peter does not personally agree with this recommendation.

Bill Shreve suggested that one way to eliminate the burden of the projects would be to have PhD students supervise them. The MEng tuition income could help fund PhDs. Both would be positive outcomes. We don't want to end up with an MEng program like Stanford's. Stanford uses its MEng program for students who can't make it in the PhD program.

Kent Fuchs shared that he agreed with Peter Jackson and believed that the final consensus will be to keep the project.

James Hauslein asked, "Is this where the MEng program is going versus where it should go?"

Mike Spencer answered that the MEng program is different things to different departments. Each department Self Study Report includes field specific recommendations. The goal is to make a statement about what the MEng program should be.

Charles Brown said that he believes the project is very important and rounds out the first four years of study and puts them in perspective. It helped him significantly in the first three years of his career. Undergraduates at Cornell may participate in projects but 2/3rds of the students in the MEng program come from outside and may not have had project experience. Teamwork and leadership are important to a Cornell degree.

**Diversity** – Zellman Warhaft and DiOnetta Jones

In spring 2003 Zellman Warhaft became the Associate Dean for Diversity. This was the first time that the Engineering diversity initiative was led by a faculty member and Zellman's role was to interface between the Diversity Office and the faculty. Additionally the responsibilities for promotion and tenure were moved to the Diversity Office giving it greater credibility.

The first two years were spent restructuring and restaffing the office and the office is now fully staffed. The offices primary goals are to:

- Recruit and retain a diverse faculty
- Recruit and retain URM and women undergraduate and graduate students

The pipeline for faculty and students is not the real issue. The real issues are the environment in the college and attracting and retaining world class faculty. We have set quantitative goals for increasing the diversity of faculty and students in our Strategic Plan.

Tim Costello asked, "How did you go about the goal setting process for students and faculty?"

Kent Fuchs answered saying that we looked at where we were and added percentages that we thought were ambitious but achievable based on past performance. We have already overshot some of our goals and will need to adjust them.

Charles Brown suggested that graduating PhDs and Post Docs are a good population to look at for the faculty pool. He asked, “Are we a leader or a follower?”

Bill Shreve said that setting numbers for goals is good but they are a trailing metric. He asked if we were planning any other studies to look at the climate and assess the areas to improve.

Zellman Warhaft replied that the university has just done a large survey and once the results are released we will learn from that.

DiOnetta added that the Diversity Office is holding faculty and women’s focus groups and luncheons and they will also use the feedback from those forums to improve the climate.

Rebecca Robertson shared that net based surveys are very successful and allow you to ask specific questions to guide program development.

Evelyn Taylor asked if there was any training provided to the faculty mentors.

Kent responded that the college does not train the faculty mentors but it is a good idea. We do have training and mentoring but we don’t train the mentors.

Charles Brown noted that the mentoring expectations of URMs and women are different than those of white males.

Zellman clarified that the best practices in hiring that were being developed would go from the identification of candidates through the mentoring of new faculty.

Bill Shreve shared that in industry he learned what the problems are by mentoring women. There weren’t any big problems that you could easily identify but little things added up. He also suggested that by mentoring people in other countries you can gain a global perspective.

DiOnetta Jones said that when she was hired Zellman Warhaft asked her to make the Diversity Office the best program in the world. She reviewed the programs that the Diversity Office was offering or planning. The programs address diversity in the broadest sense and include consideration, for example, of LGBT and physically challenged faculty and students.

Rebecca Robertson said that she heard the North Campus had an unintended impact of isolating first year students from more experienced upper class students.

DiOnetta responded that is why they link the upper class students with first year students and also move events around campus.

Robert Cowie asked, “How do you know who is on the other end of MentorNet?”

DiOnetta explained that MentorNet has a screening process.

The new program that is being developed is called CATALYST (Cornell Association for the Technological Advancement for Learned Youth in Science and Technology). CATALYST will offer a one week project based summer experience for URM students.

Bill Shreve adjourned the ECC into Executive Session.