Master of Engineering Committee Meeting Minutes  
October 9, 2002  8:00 – 9:00am  
240 Carpenter Hall

Attendees: Graeme Bailey, James Bartsch, John Belina, Larry Cathles, Scott Coldren, Mark Eisner, David Grubb, Associate Dean Isaacson, Bruce Kusse, Michel Louge, Larry Newman, Mark Otis, Dawn Warren

Guests: Patty Apgar, Karen Biesecker, Dean Fuchs

Absent: Bing Cady, Fred Kulhawy (Represented by: Patty Apgar), Jim Jenkins, Claude Cohen

Jim Bartsch called the meeting to order at 8:03am.

Approval of September 2002 Minutes: 
Jim Bartsch requested the following changes be made to the September 11, 2002 MEC minutes:

Biomedical M.Eng. Program Proposal
Clarify this section by adding last names.

Chemical & Biomolecular Engineering Petition
Add the following sentence: “The M.Eng. rules require that students petition to take more than 20 credits.”

The amended minutes were approved unanimously.

Introductions:
Jim Bartsch requested introductions be made for the benefit of Dean Fuchs and Mark Otis, Assistant Director of ORGSPE.

Dean Fuchs – Introduction & Perspective
Dean Fuchs opened his discussion by telling the MEC that he would like to work with them closely in the coming year to implement their ideas outlined in the Ad Hoc Report to improve the M.Eng. program. The next 10 months will be used to set in place plans that Dean Fuchs wants to execute during his 5-year term. The Dean’s experience with a M.Eng. program is relatively new (Purdue’s Master’s program was a lead-in to a Ph.D. or terminal Masters degree), but he is impressed by the accomplishments and quality of the M.Eng. program, as well as the initiative the faculty have taken with the MEC’s guidance.

The Dean indicated that he is concerned by the increasing workload on Engineering faculty. The faculty size in Engineering, including Computer Science, has been decreasing over the last 10 years while the College has taken on
many positive initiatives that have increased their teaching load. The creation of the new M.Eng. program in Systems Engineering and the proposed M.Eng. program in Biomedical Engineering were cited as examples, in addition to initiatives at the undergraduate and MS/PhD levels. He doesn’t believe that the faculty can be real leaders in instruction and research education if their workload continues to increase.

The Dean referred to the US News & World Report’s recent ranking of Cornell (overall) at 14 in their list of top 20 schools. Most, if not all, of the 13 schools above us were private. He indicated that the set of metrics used to evaluate the schools included three quantitative measures in which we were significantly below the other 20 universities, and they all related to size of classes or student to faculty ratio:

1) We have fewer small classes;
2) We have more large classes; and
3) We have the highest student to faculty ratio.

The College of Engineering, compared to other colleges at Cornell, is a significant factor in those areas. Our student to faculty ratio is considerably larger than either Arts & Sciences or the College of Agriculture and Life Sciences – almost twice the size, and Engineering has fewer small classes and more large classes than the rest of Cornell.

Dean Fuchs wants the M.Eng. program to enhance our core mission explicitly -- not just to educate students that industry wants but to help us in our undergraduate and Ph.D. programs as well. The Dean has asked all departments (through their Chairs & Directors) to submit a 5-year plan. The objective is to comprise a set of goals and strategies, and the ultimate objective is to tie those to the resources that we need to meet those objectives. His personal goal is to be a significant part of the next president’s capital campaign. He feels that Engineering’s portion of that campaign should be at least ½ billion dollars. Included in the above-mentioned 5-year plan will be a facility planning process. The Chairs and Directors have received a 10-page document, and by early spring he plans to have a set of goals in terms of facilities. The plan will include the renovation of virtually every building on the Engineering quad (including Olin Hall) and the construction of two new facilities.

Dean Fuchs indicated that he is open to the reexamination of the M.Eng. tuition return, and he asked the MEC if they agree with the recommendations in the M.Eng. Ad Hoc Report, submitted last summer to Interim Dean Craighead. Dean Fuchs told the MEC that he had spoken with Jim Bartsch about the role of the M.Eng. program in the land grant mission. Francille Firebaugh is heading a study in which Engineering is participating in the technology transfer portion and engineering specific portion, and Jim will check to make sure the M.Eng. program is included.
Additionally, Dean Fuchs mentioned the distance education component that the College needs to consider – will we be more aggressive in that? In closing, Dean Fuchs asked the MEC members if they had questions, comments or advice.

Michel Louge indicated that there is an item that is too recent to have been included in the MEC’s Ad Hoc Report – the creation of an institute with facilities, personnel and equipment to facilitate the conduct of successful undergraduate and M.Eng. projects such as Robocup, HEV, SAE and Concrete Canoe to name a few. As an initiative, the undergraduate and M.Eng. programs would benefit from the creation of such a facility. Michel clarified that this idea had surfaced within the last couple of months and has not been discussed with the MEC, but he feels that this facility could be in line with the Dean’s vision and he would like to discuss the possibility of including it in the Dean’s presentation to the new president. Dean Fuchs liked Michel’s suggestion and he acknowledged that Associate Dean Terry Jordan had shared the Inquiry Based Learning report with him. A request was made to see the report, and Michel indicated that it is still in the brainstorming stage. Dean Fuchs encouraged the MEC to invite Terry Jordan and Deborah Cox to one of their meetings to discuss this proposal.

Larry Cathles mentioned an issue previously discussed by the MEC regarding variations of enrollment in programs and how to maintain faculty through those short-term cycles. He inquired about the prospect of creating a flywheel or slush fund to handle those ups and downs. The Dean acknowledged their concerns and agreed that the economy can impact this more than endowments or undergraduate tuition.

Graeme Bailey offered that international relations play a key role in these cycles. Computer Science has noticed a dramatic drop (approximately 1/3) in applicants from Pakistan and other countries because visas are difficult to obtain.

Mark Eisner indicated that the M.Eng. program was initially almost entirely comprised of Cornell University undergraduates, but the program has an appeal outside of Cornell (both domestically as well as internationally) – are we interested in strengthening those connections with other schools? Additionally, Mark referred to the Dean’s earlier concern regarding enrollment and its interaction with workload. He agreed that it’s a complex issue and suggested that a model be created to reflect what the implication of the changes might be. If the US News & World Report defines large classes as 50+, we could worsen the situation by dividing a class of 200 students in half.

Dean Fuchs asked the MEC if Carpenter Hall could do more to support the M.Eng. program. He announced that he has been looking at the responsibilities of the Directors, Assistant Deans and Associate Deans of our programs and will announce some major changes soon. The Dean also mentioned that ORGSPE
currently sits by itself in Olin Hall and asked if the MEC had any comments regarding the services ORGSPE provides to them.

Mark Eisner commented that the quality of communications materials (both printed and electronic), as they relate to communicating with employers and prospective students, could be enhanced.

Larry Newman suggested that the department websites would benefit by having a more uniform system -- making them easier to maintain. John Belina agreed adding that it would also facilitate navigation.

With regard to the Dean’s request for feedback on ORGSPE’s contributions, various positive comments were offered.

Dean Fuchs closed by thanking the MEC and asked them to please call if they need help.

Report from Subcommittee on Financial Returns:

Michel Louge updated the MEC on the workings of the Subcommittee on Financial Returns. The objective is to bring enrollment into M.Eng. programs for departments with currently small enrollments. The way tuition is being returned to individual departments stems from a deal worked out at the beginning of these returns (John Belina is our resident historian). The current process is:

1) Subtract 250 students from the total M.Eng. enrollment (the monies from these 250 students remain in Day Hall);

2) The difference (tuition minus administrative fees) is distributed as:
   30% funds M.Eng. activities
   70% is returned to departments as incentive to grow their enrollment

The 70% return uses a non-linear formula, and some departments are taking a greater share at meeting the 250-student threshold than others. Michel displayed overheads that describe the non-linear formula process (see on-line PDF attachments). The original rationale was to encourage the growth of small programs. Other than ORIE, the small departments haven’t significantly increased their enrollments, and ORIE has provided a substantial share of the 250-student threshold.

An alternative formula was discussed in which the 70% returned to departments would be based proportionally on the number of students. Using a 5-year “returns” comparison chart (see on-line PDF attachment “Comparison with a proportional formula 1996-2001”), departments with a large student to faculty...
ratio would benefit greatly from the proportional formula. Many departments with small returns have consistently received less money than they would have otherwise with a proportional system.

Under the current non-linear scheme, a department increasing their enrollment by one student may not receive the most financial benefit (refer to the on-line PDF attachment “Facts about the returns formulae”). The Proportional Formula would ensure that the department increasing their enrollment would benefit the most.

Results of the Subcommittee meeting that took place over the summer were presented at the 9/02 MEC meeting, but Mark Eisner wasn’t able to attend the Subcommittee meeting that prepared those findings and disagreed with some of the recommendations (refer to the September 11, 2002 MEC minutes on-line). Neither of the two recommendations that were submitted at the September MEC meeting is ready to be voted on because the Subcommittee can’t agree on a scheme to replace the current system.

The Subcommittee met prior to the October MEC meeting, and Mark Eisner submitted an alternative formula -- the “ORIE Fair Share” Proposal (please refer to the on-line PDF attachment). The ORIE Fair Share Proposal would create an incentive for departments to meet their fair share, and once met to grow beyond it. Michel has done some analysis of the Fair Share formula, and it turns out that it shares the same type of problems identified with the non-linear formula. His overhead entitled “Facts about the Fair Share Formula” (please see the on-line PDF attachment) outlines the problem. Neither the current scheme nor the Fair Share proposals give smaller departments any incentive to grow.

Michel displayed an overhead comparing the proportional formula against the “fair share” formula (see on-line PDF attachment “Comparison proportional vs. “fair share” formula 1996-2001”). He indicated that the culprit isn’t how the money is distributed; it is the agreement that was made with Day Hall regarding the 250-student threshold. If this agreement can be renegotiated, we could tell Day Hall that we are willing to give them same amount of money they are currently receiving, allowing the remaining funds to be distributed lineally proportional to the number of students we have – eliminating these issues. This would also give Day Hall an incentive to help us build the M.Eng. program. A substitute motion has been made to replace the motion presented in the September 2002 MEC meeting, and it reads:

“In order to raise the program’s national prominence across the broadest number of Fields, the subcommittee recommends that alternatives to the existing formula for financial M.Eng. returns be sought.”

Dean Fuchs asked Michel if the subcommittee would consider preparing a proposal for him to take to Day Hall. The Dean commented that he agrees with
the subcommittee’s intent to make everything proportional. Mark Eisner indicated that the prior provost created the current agreement in the early 90s, and he feels that Day Hall has chafed over it since. Mark feels that reopening the agreement could be dangerous – the M.Eng. program is probably the only program where tuition comes directly back to the program. Graeme Bailey felt that if something could be done internally, it would be safer. Dean Fuchs noted that the College has a good relationship with both Carolyn Ainslie and Biddy Martin, and he assured the MEC that Cathy Long fully understands the sensitivities. Michel indicated that he would like to involve the departments that have the greatest stake in this change. Mark Eisner suggested that the subcommittee be opened up to anyone interested in participating.

Dean Fuchs offered another possible solution to the current system – freeze the 250-student threshold, and any further growth would be made proportional so that no one loses unless they fall below their current enrollment.

Mark Eisner pointed out that the Ad Hoc Report discusses a recommendation that the formula be made more visible because it has built-in incentives that work and people have lost track of those incentives. It remains that there are good reasons within the formula for departments to grow their program relative to their faculty size.

Michel announced that the subcommittee recommends that the motion presented in the September 2002 MEC meeting be replaced by the motion presented today. Mark Eisner commented that the subcommittee should be involved in what ideas go forward to Day Hall – Dean Fuchs told the MEC that he wouldn’t go to Day Hall without the knowledge of the MEC or the Deans & Chairs.

David Grubb noted that he was present when the M.Eng. returns formula was initially created, and non-linearity was discussed, but a workload element was also discussed. It was decided that departments with a small program could piggyback on what they have and large programs would need to hire instructors. Mark Eisner added that the small departments were also small in terms of faculty size -- the faculty workload was considered from the start.

Larry Cathles commented that the dilemma from a small program point of view, without a mechanism for ramping things up, you are faced with a decision of making a big incremental change with a lot of risks associated with it -- it is more comfortable to do things slowly. Mark Eisner indicated that it goes back to the flywheel issue.

Jim Bartsch read the subcommittee’s substitute motion, and the MEC voted unanimously to continue searching for an alternate formula.

**Overview of student tuition/unionization issue:**
Mark Otis explained to the MEC that the M.Eng. Teaching Assistants are currently appointed on the Graduate Assistantship appointment forms, however a majority isn’t receiving a tuition remission. A tuition remission greater than 25% would make them eligible to participate in the upcoming student unionization vote. The NLRB views these students as technically eligible due to the fact that they are considered Teaching Assistants. The M.Eng. TAs who aren’t currently receiving a tuition award equal to 25% of tuition may need to have their appointments switched to the COLTS timecard system. Mike Hayes will speak with Assistant Dean Sarah Hale to resolve this issue, but the students are currently on the NLRB’s list of eligible voters. Dean Fuchs indicated that he would like to have as many Engineering graduate students participate in the upcoming vote as possible.

Larry Cathles pointed out that if the M.Eng. students are eligible to vote on the student unionization issue and it is voted in, they will be considered union members and the tuition remission will need to be put into play – at a large cost to the College. He also noted that the M.Eng. program could be viewed as a 5th year of undergraduate study and isn’t the same as an MS/PhD program.

Jim Bartsch closed by indicating that we will need to address the compensation for our TAs.

The meeting adjourned at 9:08am.