1. Attendance:
   Aero – Not present
   AVN – Not present
   BME – Ron Xu
   CHE – Dave Tomasko
   CEGS – Robert Sykes
   CSE – Bruce Weide – Chair
   ECE – George Valco
   ENG PHY – Linn Van Woerkom
   FAB – Larry Brown
   IWSE –
     ISE – Shahrukh Irani
     WLD – Charley Albright
   MSE – Rob Wagoner
   ME – Mike Moran
   Graduate Student – Robin Ng
   Undergraduate Student – Laura Nash, Michael Johnston
   Secretary – E. McCaul
   Guests – R. Gustafson, R. Smith, P. Hussen

2. The Minutes from the 3 June 2005 meeting were approved as written.

3. The members of the committee introduced themselves.

4. Bob Gustafson informed the committee that the Biomedical Engineering Department Proposal has been approved by the University Senate.

5. The committee was informed that Rita Alevriadou will be updating the committee on the Biomedical Engineering UG Degree Proposal at the committee’s next meeting. The committee secretary told the committee that he has been informed that the current plan is to present the proposal to CCAA sometime during the winter quarter.

6. Bob Gustafson briefed the committee on the current status of the college’s GEC proposal.
   6.1. The committee was given a short history of the proposal. The proposal was approved by the Core Committee in December 2003, CCAA in February 2004, and then submitted to CAA. It was not until this summer that the proposal was forwarded by the subcommittee responsible for reviewing it to CAA. CAA voted on each recommendation individually and Bob received an e-mail from Randy Smith informing him of the results of the votes, but not the reasoning behind any of them.
6.2. The recommendations in the proposal that CAA voted on had been modified, in consultation with the leadership of the College’s Core Committee, from the recommendations in the proposal approved by CCAA. The modifications were done based on input from the CAA subcommittee reviewing the proposal to make it more acceptable. The version of the proposal that was voted on by CAA is attached as a memo to Mark Fullerton, Chair, Subcommittee C, Council on Academic Affairs, dated 30 June 2005.

6.3. Bob reviewed with the committee the memo that was sent to all members electronically dated 26 September 2005 (attached). Based on Randy Smith’s e-mail to Bob, CAA’s vote on each recommendation was:

6.3.1. Recommendation 1, Review of the 3rd Writing Course in the Major – Approved

6.3.2. Recommendation 2, Encourage Foreign Language through Substitution – Not Approved

6.3.3. Recommendation 3, Increase Social Science Category by one credit to 10 credits – Approved

6.3.4. Recommendation 4, In the Category of Arts and Humanities (including history), require a total of 20 hours with the possibility that a course from Analysis of Texts and Works of Art could double count as the second History Course – Not Approved. However, Bob was informally told that CAA would be open to the possibility of this recommendation being revised into one of three possibilities.

6.3.4.1. Two history and two other Arts and Humanities from the rest of the Arts & Humanities GECs. This option is no real change from our current system.

6.3.4.2. One history and three courses distributed across the other Arts & Humanities GEC categories. The advisors Bob has talked to prefer this option.

6.3.4.3. Use a second history course substitution through a course in another Arts & Humanities category that has a historical perspective. This would be like our current proposal but without the double count option.

6.3.5. Recommendation 5, Create an Ethics Requirement in the Engineering GEC – Approved

6.3.6. Recommendation 6, Engineering Students be allowed to take one 597 University Capstone course for GEC credit – Approved

6.3.7. Recommendation 7, Expand the Category of Natural Sciences to Natural Sciences and Technology – Not Approved

6.3.8. Recommendation 8, Expand the Category of Diversity to include International Issues – Not Approved

6.4. Bob feels that we have three options.

6.4.1. Accept the recommendations approved and respond with a request for approval of one of the options informally proposed by CAA for Recommendation 4.
6.4.2. Request reconsideration of any elements of their decision we so choose, with perhaps some additional discussion. Essentially continuing the process.

6.4.3. Decide that we will stay with our current GEC model.

7. The floor was opened for discussion.

7.1. George Valco, a member of CAA, was asked if there would be more detail in CAA’s minutes that would give us a better idea of their thought process. George responded that there may be but that not everything that was said will be included. In addition, George did not think that the minutes had been transcribed yet.

7.2. The question was asked if it would be fair to say that any reduction in hours from Arts & Science is not allowed but that increases are. The response was that while this may not be the case all of the time that it was the outcome of our proposal.

7.3. The comment was made that the recommendations that were disapproved were the ones that would have helped our students that most.

7.4. The question was raised as to why the foreign language minor recommendation was not approved. The response was that while part of CAA was in favor of this recommendation others thought that some foreign language minors did not require literature and visual/performing arts courses. The suggestion was made that we resubmit this recommendation but limit the minors to those that require literature and visual/performing arts courses. George Valco was asked if it would be worthwhile and he responded that it would be a possibility.

7.5. The question was raised as to whether there is a nuclear option that we can use to get all of the recommendations approved. Bob Gustafson responded that we could appeal to the Senate but that he would not recommend this option.

7.6. Dave Tomasko, a member of the university committee discussing revising the university’s GEC, commented that this committee is considering recommending that minors be allowed to double count as well as increasing a student’s flexibility in meeting the GEC requirements.

7.7. The question was raised as to why Recommendation 7, Expand the Category of Natural Sciences to Natural Sciences and Technology, was not approved. The response was that CAA did not want to change the name of a GEC category. Dave Tomasko added that while there is no rational reason for not including the word technology in the title, the committee he is on is considering recommending making it easier for technological courses to become part of the GEC. The report from this committee should be out next month.

7.8. The comment was made that a letter should be sent to CAA by the Dean’s office reflecting our disappointment in their limited response. Many months of effort went into making an extensive proposal and all we got back was a very short e-mail message. This is completely unacceptable and we need to let CAA know.
8. Bob Sykes made a motion that the approved recommendations be adopted by the college effective the start of autumn quarter 2006. George Valco seconded the motion. A vote was taken: 12 approved, 0 opposed, and 0 abstentions.

9. Dave Tomasko made a motion that Recommendation 2, revised so that only those Foreign Language Minors that require a literature and a visual/performing arts course are included, and Recommendation 4, revised to one history and three courses distributed across the other Arts & Humanities categories, be sent to the Core Committee for revision and then sent directly to CAA and that the college office prepare a letter expressing our disappointment in CAA’s limited response to our proposal and bring it to the committee at its next meeting. Bob Sykes seconded the motion. A vote was taken: 12 approved, 0 opposed, and 0 abstentions.

10. Subcommittee assignments were announced by the chair.
   10.1. Course Proposal Subcommittee
       10.1.1. Linn Van Woerkom – chair
       10.1.2. Rita Alevriadou
       10.1.3. Shahrukh Irani
       10.1.4. Robin Ng
       10.1.5. Luther Palmer
   10.2. Curriculum Proposal Subcommittee A
       10.2.1. Mike Moran – chair
       10.2.2. Rama Yedavalli
       10.2.3. Jay Martin/Larry Brown
       10.2.4. Charlie Albright
       10.2.5. Laura Nash
   10.3. Curriculum Proposal Subcommittee B
       10.3.1. Bob Sykes – chair
       10.3.2. Gerald Chubb
       10.3.3. Jeff Chalmers
       10.3.4. Rob Wagoner
       10.3.5. Michael Johnston

11. The meeting was adjourned at 11:30.

C: College Faculty
CCAA File
30 June 2005

TO:  Mark Fullerton, Chair, Subcommittee C, Council on Academic Affairs

FR:  Robert J. Gustafson, Associate Dean

RE:  Consideration of the Engineering GEC Proposal Recommendations

Based on the helpful input we have received from Subcommittee C and on-going discussion regarding the Engineering GEC proposal, we would like to submit the following revised set of proposals for consideration by CAA. This would replace Section 4 “Recommendations for the Engineering GEC and a Proposed Model” originally submitted. We have highlighted the changes using strike out for material to be deleted and italics for added material to facilitate comparison with the Recommendations submitted earlier. We have also placed any new discussion in “boxed” areas.

A table showing what would be the minimum requirements of the original proposal, the revised proposal, and the foreign language minor/foreign language options is attached as Supplemental Attachment 1. In addition, a revised curriculum or “bingo” sheet showing how the proposed curriculum would be present to engineering students is attached as Supplemental Attachment 2 and a summary of Foreign Language Minor Requirements as Supplemental Attachment 3.

We hope this additional materials and presentation will make consideration by CAA easier.

C:  Randy Smith, OAA
C:  Ed Adelson, Associate Dean, Colleges of the Arts and Sciences
C:  Bruce Weide, Chair, College Committee on Academic Affairs, Engineering
C:  Gonul Kaletunc, Chair, Core Curriculum and College Service Committee, Engineering
4 Recommendations for the Engineering GEC and a Proposed Model (Revised 6/30/05)

As noted earlier, there is general concurrence between the goals established by the university for an educated person and for general education. As reflected in the current Engineering GEC model, engineering may place a different level of focus on various elements compared to other curricula. As pointed out by the American Association of Colleges and Universities 2002 Report Greater Expectations – A new Vision for Learning as a Nation Goes to College,

“Liberal education is an educational philosophy rather than a body of knowledge. By drawing on a broad range of knowledge, it asks students to grapple with complicated important issues, and usually expects them to learn at least one subject in greater depth and at an advanced level. Intellectual growth occurs as both broad and deep learning challenge previously held beliefs. The philosophy of liberal education depends less on particular subject matter than on an approach to teaching and learning. A student can prepare for a profession in a “liberal” mind-expanding manner, or study the humanities or social sciences (traditional “liberal arts” disciplines) narrowly and shallowly.”

Given the significant competition for curriculum space in engineering programs, it is imperative that all elements of the curriculum work together in a coordinated fashion towards the goals. This would imply careful selection of the elements of the curriculum and additional focus on the overlapping domains.

4.1 Recommendations

Recommendation 1 – Review of 3rd Writing Course in the Major

All outcomes assessment reinforced the importance of written and oral communication. Although recent changes in the engineering core courses have been directed towards this issue, it is the opinion of the committee that it needs to explore further the effectiveness of our English and Communication Skills component. In particular, since it has not received direct review by the college since its inception, the third writing course in the major should be studied.

Recommendation: The Core Curriculum and College Services Committee, in collaboration with the College of Engineering Technical Communications Center and University Writing Center the Study and Teaching of Writing, review the 3rd Writing Requirement for Engineering. Anticipated outcomes would be the enhancement of the courses, not a basic change in structure or courses required.

This recommendation would not require specific action by CAA, but could be support by CAA. Action in this area has already been initiated.

Recommendation 2 – Encourage Foreign Language through Substitution

In an increasingly internationalized professional practice environment, the college would like to encourage facility in languages other than English for its students. Our own analysis of values shows language contributing most to GEC Goals 7, 8, and 10 as well as 11 (See section 4.1 and Appendix 3). The Ohio State University General Education Curriculum (June 8, 1988) states that foreign language provides a number of important educational aspects for students such as: “cultural mores and concepts”; “introducing a student to the cultural context that has produced the language”, and that “a combined linguistic and cultural study that should lead to an understanding of the people and how they express themselves”. These show significant overlap to both Arts and Humanities and Social Science goals. Arts and Humanities states in The Ohio State University General Education Curriculum (June 8, 1988) that they have eight general learning objectives. Out of those eight, four (cultural phenomena; cross-culturally; social and cultural diversity; and cultures of major regions of the world) would appear to parallel foreign language goals. Social Sciences states in The Ohio State University General Education Curriculum (June 8, 1988) that they have six general learning objectives. Out of those six, three (examine human differences and similarities;
cross-cultural and cross-temporal comparisons; and sense of the world’s social, political, economic, and cultural diversity) would appear to parallel foreign language goals. Given this it seems reasonable to allow students to substitute more advanced courses in language for either elements in Social Science or Arts and Humanities. Also, the committee feels that it is appropriate to encourage additional depth by encouraging completion of a foreign language minor. International studies should be facilitated by in-depth study through the minor. This approach is consistent with patterns used by benchmark institutions as reported in the Review of Benchmark Institutions.

Recommendation -

a. The completion of a foreign language sequence through the 104 level (one to four language courses) can be substituted for one (5 hour) GEC course requirement within the Arts & Humanities category BC1 (Analysis of Texts and Works of Art, Literature) or category BC3 (Analysis of Texts and Works of Art, Cultures and Ideas) [See attached advising sheet]. It may not be substituted for a Historical Survey course. A student receiving advanced placement through the 104 level must take a minimum of one foreign language course with a prerequisite of 104 to receive this GEC credit.

b. The completion of a minor within a foreign language department (which includes the completion of a language through 104) can be substituted for two (5 hours each) GEC courses; the first from Arts & Humanities category BC1 (Analysis of Texts and Works of Art, Literature) or and the second from Arts & Humanities category BC3 (Analysis of Texts and Works of Art, Cultures and Ideas), the second from Social Sciences category A (Individuals and Groups) or category B (Organizations and Politics). This two-course substitution is NOT in addition to part a.

Reason for change in recommendation: We are of the opinion that any student completing a language minor will be assured of taking at least the equivalent of one course in the literature category and at least a one-course equivalent to the types of courses included in the Culture and Ideas category. It should be recognized that the courses may not be listed under the approved GEC listing and may actually be a more advanced course. Attached as Supplement Attachment 3 is a summary sheet showing the requirements of some of foreign language minors and the number of engineering students recently completing the minor. Note that students using the minor option would 1) not be able to benefit from the recommendation on double counting of 2nd history and 2) need to take the ethics requirement in the Social Science area to avoid adding five credits. Recommendations part a. and b. could be addressed independently.

Recommendation 3 – Increase Category of Social Sciences by One Credit

In establishing the engineering GEC in 1987, the requirement for the Social Science category was set at 9 credits. Since courses other than five credits are not readily available or widely used, this establishes a hidden requirement of one credit. The proposed change brings the credit requirement in line with the five-credit modules available in the categories.

Recommendation: Increase the required credits in Social Sciences category by one credit to 10 credits.

Recommendation 4 – Decrease Arts & Humanities, including History, Requirement to Ten Credits.

a) Change the Arts & Humanities requirement so that an appropriate course from Analysis of Texts and Works of Art would double count as the second History requirement and b) Increase the number of hours in the Analysis of Texts and Works of Art category from 9 to 10.

In establishing the engineering GEC in 1987, the requirement for the Visual/Performing Arts or other Arts and Humanities category was set at 4 credits. Since courses other than five credits are not readily available or widely used, this establishes a hidden requirement of one credit. The proposed change brings the credit requirement in line with the five-credit modules available in the categories.

Previous descriptions of the Engineering GEC had shown Historic Survey as a category separate from other Arts & Humanities. At this time, Historic Survey is included as a subcategory of Arts and Humanities to be more consistent with the GEC model of the Colleges of the Arts and Sciences.
After its analysis of goals of the GEC and contribution of each category, and consideration of balance of experience in the curriculum for the student, it is the opinion of the committee that the goals of the GEC will still be attained with:

(a) the reduction to one course in history. In comparison with benchmark schools (12), shows it appears that only one other institution specifically requires two courses in history (UT Austin), two others have a one course history requirement, and that others (9) do not have history in a separate category. There are other OSU GEC implementations requiring only one course of a history sequence.

(b) requiring one course in Analysis of Texts and Works of Arts. This grouping combines the categories of Literature and Visuals and Performing Arts and Other Humanities of the previous Engineering GEC model under a title consistent with the current College of Arts and Science GEC model.

Recommendation: In the categories of Arts & Humanities, require a total of 10 credits. One course would be required from each of two subcategories: A. Historic Survey, and B. Analysis of Texts and Works of Art.

In the category of Arts and Humanities, require a total of 20 hours with the possibility that a course from Analysis of Texts and Works of Art could double count as the second History course.

A designated class from one of the following categories could be double counted to meet the second history course requirement; Arts & Humanities, Analysis of Texts and Works of Art; 1) Literature, 2) Visual/Performing Arts, or 3) Culture and Ideas. The designated course would have to meet the following criteria “Course should provide a broad chronological overview with special attention to the interrelationship of various types of change (e.g., economic, political, social, cultural, artistic, intellectual, and technological) and be on the currently approved GEC course list.

The College of Engineering would establish a panel with the following membership and process to add or delete a designated course. The College of Engineering Core Curriculum and College Services Committee would have a standing subcommittee for this purpose. The subcommittee, appointed by the Chair of the Core Committee, would be comprised of two faculty from engineering, two faculty from the College of Arts and Sciences (designated by the Associate Dean for Academic Affairs in Arts and Sciences), one engineering academic advisor, and one engineering undergraduate student. Members do not need to be members of the Core Committee. With the exception of the student member, who would be appointed annually, all members shall serve three year terms.

Reason for change in recommendation: This concept was suggested by Subcommittee C to be similar to the drop-a-course option of the Arts and Science GEC implementation. We appreciated their creative approach. We feel this preserves the goals of the GEC while at least partially addressing the credits to degree issue for student exercising careful course selection.

Recommendation 5 - Create an Ethics Requirement in the Engineering GEC

In its analysis of available outcomes assessment data, the UCRC Report and the current GEC model, the College of Engineering Core Committee came to the conclusion that the area of ethics and professional responsibility needs to be a more significant element in the Engineering GEC and the curriculum at large. A recent ASEE White Paper on Liberal Education (Steneck, et al. 2002) identifies elements that should be part of the liberal education of engineering students. These elements and curriculum goals were used as the basis for a discussion with Departments (e.g. Philosophy, Comparative Studies, History and English) regarding potential course offerings relevant to this area. A discussion document (Appendix 8.1) was used to identify strategies for meeting curricular goals in this area.

The committee concluded that Ethics and Professionalism should be addressed in the three elements of the curriculum: (1) the first-year engineering programs as part of the Engineering Core, (2) the Engineering GEC with focus on ethics, and (3) as an element of a course or courses within the major.
Recommendations:
(a) Inclusion of the topic of engineering ethics should be continued as an element of the Introduction to Engineering courses (ENGINEER 181/183 and ENGINEER H191/H193).

This recommendation would not require specific action by CAA, but could be support by CAA. Ethics is included as a topic in ENG 181 and ENG H191.

(b) Creation of a Ethics requirement new category of Ethics in the Engineering GEC.

This category would overlap with and also be considered part of the Engineering Core. As with other categories of the engineering core, courses would be approved for the category by the Core Curriculum and Undergraduate Services Committee. The Core Committee would also be responsible for monitoring the courses listed over time to assure objectives of the category are being met. Proposed procedures criteria and procedures are included within Appendix 8.2 and 8.3. A list of courses tentatively approved to date is shown below. Courses for this category will likely come predominantly from units in the Colleges of the Arts and Sciences, although courses from other units will be considered. The College of Engineering has no current intention of offering a course in this category.

ETHICS (5 hrs)
Philosophy XXX Introduction to Professional Ethics - Approved
Comparative Studies 272 Science and Society - Approved
Sociology 302 Technology and Global Society - Approved
Sociology 464 Sociology of Work – Under Consideration

A course taken by students to meet this requirement will not be allowed to count in other categories (no double counting) except for meeting the diversity reuirement. This course would be allowed to double count as an Arts and Humanities or Social Science course. However, an Arts and Humanities course would only count as an Arts and Humanities GEC course and a Social Science course would only count as a Social Science GEC course. Letters and syllabi are attached as Appendix 8.3.

Reason for change in recommendation: We understand Arts & Sciences concern of conflating Social Science and Arts & Humanities courses. Consequently, we proposed only allowing Engineering selected Ethics courses to count as a GEC in the discipline in which they are taught.

(c) The Core Curriculum Committee encourages continued work on assessing how the college and programs can better prepare students in the area of ethics and professional responsibility. This may be included in the concept of a college-wide pre-capstone design course. Some discussion in the college has occurred regarding the development of a common, college-wide capstone course that would focus on elements of the design process in a multidisciplinary environment with ethics and professional responsibility considered. Such a course would precede a discipline based capstone design course or course sequence. Given that such a course would take considerable development time and will not directly impact the Engineering GEC model, and that majors already address ethics and professionally responsibility to some extent in ways specific to the major, it is not being included in this proposal. It may be advanced at a later date.

Recommendation 6 – Allow Substitution of Capstone (XXX 597) for GEC Lower Level Social Science Requirement

Students should take higher-level GEC courses when possible. One method to facilitate this, to a limited degree, would be more utilization of the University approved capstone (597 courses) by engineering students. Engineering students could certainly contribute to these courses and benefit by their interdisciplinary nature.
Recommendation: Engineering students be allowed to take one 597 University Capstone course for GEC credit. An Arts & Humanities 597 course can substitute only for an Arts and Humanities course. A Social Science 597 course can substitute only for a Social Science course. This course may NOT be also counted in another category, such as ethics or historic survey.

Recommendation 7 – Expand Category of Natural Sciences to Natural Sciences and Technology

The UCRC report acknowledges the incompatibility between the General Education Goal “...understand the interactions among science, technology, the universe, the individual, and society” and the dearth of coursework in the proposed GEC category (Natural Science) to address the matter of technology. The UCRC report also acknowledges that the committee discussed the issue at length and concurred with a report jointly issued by the National Academy of Engineering and the National Research Council (NRC) (Pearson and Young, 2002). The NRC Report (page 13) defines technology as:

“In the broadest sense, technology is the process by which humans modify nature to meet their needs and wants. Most people, however, think of technology in terms of its artifacts: computers and software, aircraft, pesticides, water-treatment plants, birth-control pills, and microwave ovens, to name a few. But technology is more than these tangible products. The knowledge and processes used to create and to operate the artifacts – engineering know-how, manufacturing expertise, various technical skills, and so on – are equally important. An especially important area of knowledge is the engineering design process, of starting with a set of criteria and constraints and working toward a solution – a device, say, or a process – that meets those conditions.”

The NRC Report (page 17) also identifies characteristics of a technologically literate citizen in three areas as:

1) Knowledge
   • Recognizes the pervasiveness of technology in everyday life.
   • Understands basic engineering concepts and terms, such as systems, constraints, and trade-offs. Is familiar with the nature and limitations of the engineering design process.
   • Knows some of the ways technology shapes human history and people shape technology.
   • Knows that all technologies entail risk, some that can be anticipated and some that cannot.
   • Appreciates that the development and use of technology involve trade-offs and a balance of costs and benefits.
   • Understands that technology reflects the values and culture of society.

2) Ways of Thinking and Acting
   • Asks pertinent questions, of self and others, regarding the benefits and risks of technologies. Seeks information about new technologies.
   • Participates, when appropriate, in decisions about the development and use of technology.

3) Capabilities
   • Has a range of hands-on skills, such as using a computer for word processing and surfing the Internet and operating a variety of home and office appliances.
   • Can identify and fix simple mechanical or technological problems at home or work.
   • Can apply basic mathematical concepts related to probability, scale, and estimation to make informed judgments about technological risks and benefits.

In its revised final report (page 33), the UCRC viewed “that these are worthwhile goals that warrant the inclusion of technology (and not merely computer literacy) in the GEC.” However the Committee did not make any specific recommendations as to how they might be integrated into the curriculum.
As also acknowledged by the NRC report (page 13), “science and technology are tightly coupled. A scientific understanding of the natural world is the basis for much of technological development today.” Therefore, it would seem reasonable to link natural sciences and technology for purposes of the general education of our students.

The College of Engineering sees the inclusion of technology as important to the general education of all students, including engineers. Within its current engineering core curriculum, is a course required of all beginning engineering students (ENGINEER 181 – Introduction to Engineering I, see Appendix 9 for course syllabus) that addresses these issues in a significant way. Except for Autumn quarter, this course is open to all students meeting the state prerequisites. As stated in the course objectives,

“This course is designed to help students develop an understanding and appreciation of engineering, the problems solved and contributions made by engineers from various disciplines, and the engineering design process. Students will learn and practice fundamental skills useful to engineering students and professional engineers in many fields. In addition, students will develop their study skills and improve their understanding of material in their technical courses during the teamwork portion of the course.”

Recommendation: For purposes of the Engineering GEC, (1) the category of Natural Science of the ASC GEC Model be re-titled Natural Science and Technology, and (2) ENGINEER 181 (3 credits) be added as a requirement of the category to enhance addressing the goals of technological literacy.

Since ENGINEER 181 is currently a requirement of all programs, this recommendation will not change the credits to the degree for any program.

Recommendation 8 – Expand Category of Diversity Experience to include International Issues

Currently engineering students are limited in the courses they can take in the category of Diversity Experience to those courses in the Social Diversity in the United States subcategory. Many of the degrees in Arts and Science require three courses in the category of Diversity Experience – one course from Social Diversity in the United States and two courses from International Issues (one from Non-Western or Global and one from Western [non-United States]). Thus, a student in Arts and Science would take two courses in global diversity but only one course in U.S. diversity. Engineering’s alumni surveys have consistently shown support for the idea of the internationalization of engineering and the need for engineers to have knowledge of other countries and peoples. Allowing engineering students to pick from any of the courses listed under Diversity Experience would allow them an opportunity to learn about global issues while completing their diversity requirement.

Recommendation: The completion of any course from the approved list of courses in either subcategory under Diversity Experiences by an engineering student counts as completion of the diversity requirement.

4.2 The Proposed Model

Based on the inputs noted, consultation with other units, and extensive discussion, and also with focus on OSU general education goals, the committee developed a proposed model Engineering GEC and eight accompanying recommendations. Table 4.1 summarizes the revised proposed and current Engineering GEC Requirements. In summary, there is an addition of an ethics category with a one course ethics requirement. There is a one course reduction across the combination of Categories of Social Sciences, Arts and Humanities with the addition of the Ethics category. There are encouragements for students to take language courses and advanced courses. There is the option for a one course reduction by double counting. If the double counting is used, credits in the category of LA-GEC (see Table 3.2) would be reduced from 38 to 35 with a corresponding reduction in % LA-GEC from 19% to 18%. This would still leave the OSU Engineering GEC model above the mean of other comparable engineering curriculums for
When approved, this proposal will result in a reduction of three credits to degree for all engineering students. Contingent on approval by the Council on Academic Affairs, implementation of this curriculum change is planned for Autumn Quarter, 2005.

Table 4.1. Proposed and Current Engineering GEC Models

<table>
<thead>
<tr>
<th>Revised Proposed Model</th>
<th>Current Model</th>
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<tbody>
<tr>
<td><strong>English &amp; Communications Skills</strong></td>
<td><strong>English &amp; Communications Skills</strong></td>
</tr>
<tr>
<td>A. First Course – English 110 (5 hrs)</td>
<td>A. First Course – English 110 (5 hrs)</td>
</tr>
<tr>
<td>B. Second Course (5 hrs)</td>
<td>B. Second Course (5 hrs)</td>
</tr>
<tr>
<td>C. Third Course (major department)</td>
<td>C. Third Course (major department)</td>
</tr>
<tr>
<td><strong>Foreign Language</strong> (waived - Advanced study may be used for substitution for other GEC courses. See Rec. 2.)</td>
<td>Foreign Language (waived)</td>
</tr>
<tr>
<td><strong>Diversity Experience</strong> (0 hrs)</td>
<td>Social Diversity in the U. S. (0 hrs)</td>
</tr>
<tr>
<td><strong>Ethics</strong> (5 hrs – selected from either Ethics Group I or II)</td>
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<tr>
<td><strong>Social Sciences</strong> (10 hrs – No more that one from a group)**</td>
<td><strong>Social Sciences</strong> (9 hrs - selected from two groups)**</td>
</tr>
<tr>
<td>A. Ethics Group I</td>
<td>A. Individual and Groups</td>
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<tr>
<td>B. Individual and Groups</td>
<td>B. Organizations and Polities</td>
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<tr>
<td>C. Organizations and Polities</td>
<td>C. Human, Natural and Economic Resources</td>
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<tr>
<td>D. Human, Natural, and Economic Resources</td>
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<tr>
<td><strong>Arts and Humanities</strong> (15-20 hrs)</td>
<td><strong>Arts and Humanities</strong> (9 hrs)</td>
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<tr>
<td>A. Ethics Group II</td>
<td>A. Literature (5 hrs)</td>
</tr>
<tr>
<td>B. Historical Survey (10 hrs, Selected classes may double course for second history)</td>
<td>B. Visual/Performing Arts and other Arts and Humanities (4 hrs)</td>
</tr>
<tr>
<td>C. Analysis of Texts and Works of Art (5-10 (5 if Ethics Group II) No more than one from a group. (Literature, Visual/Performing Arts, Cultures and Ideas)</td>
<td>Historical Survey (10 hrs)</td>
</tr>
<tr>
<td><strong>University Capstone</strong> (waived - May substitute for GEC course. See Rec. 6.)</td>
<td><strong>University Capstone</strong> (waived)</td>
</tr>
<tr>
<td><strong>Quantitative Analysis</strong> (20 hrs)</td>
<td><strong>Quantitative Analysis</strong> (20 hrs)</td>
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<tr>
<td>Math 151,152,153,254</td>
<td>Math 151,152,153,254</td>
</tr>
<tr>
<td><strong>Natural Science and Technology</strong> (23 hrs)</td>
<td><strong>Natural Science</strong> (20 hrs)</td>
</tr>
<tr>
<td>A. Chemistry 121</td>
<td>A. Chemistry 121</td>
</tr>
<tr>
<td>B. Physics 131,132</td>
<td>B. Physics 131,132</td>
</tr>
<tr>
<td>C. Additional Science (one course from approved list)</td>
<td>C. Additional Science (one course from approved list)</td>
</tr>
<tr>
<td>D. Engineering 181</td>
<td></td>
</tr>
<tr>
<td><strong>Total = 78-83 hrs</strong></td>
<td><strong>Total = 78 hrs</strong></td>
</tr>
</tbody>
</table>
## Supplemental Attachment 1 - Minimum Engineering GEC that is required of all students

<table>
<thead>
<tr>
<th>GEC Category</th>
<th>Current Model</th>
<th>Base Original Proposal</th>
<th>Base Revised Proposal</th>
<th>Option 1 Foreign Language through 104</th>
<th>Option 2 Foreign Language Minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Writing and Related Skills</td>
<td>1st - English 110</td>
<td>Same (10)</td>
<td>Same (10)</td>
<td>Same (10)</td>
<td>Same (10)</td>
</tr>
<tr>
<td></td>
<td>2nd - xxx 367 (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3rd - With major (0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantitative and Logical Skills</td>
<td>Math 151, 152, 153, 254 (20)</td>
<td>Same (20)</td>
<td>Same (20)</td>
<td>Same (20)</td>
<td>Same (20)</td>
</tr>
<tr>
<td>Natural Science</td>
<td>Physics 131, 132, Chemistry 121</td>
<td>Change title to “Natural Science and Technology” Physics 131, 132 Chemistry 121 One course from an approved list (20)</td>
<td>Same (23)</td>
<td>Same (23)</td>
<td>Same (23)</td>
</tr>
<tr>
<td>Ethics</td>
<td>N/A</td>
<td>1 approved course from either Social Science or Arts &amp; Humanities (0)</td>
<td>Same</td>
<td>Same</td>
<td>Same</td>
</tr>
<tr>
<td>Social Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Individuals &amp; Groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Organizations &amp; Politics</td>
<td>2 courses total, no more than one course from any group (9)</td>
<td>2 courses total, no more than one course from any group (10)</td>
<td>2 courses total, no more than one course from any group (10)</td>
<td>Same (10)</td>
<td>Same (10)</td>
</tr>
<tr>
<td>C. Human, Natural, &amp; Economic Resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Historical Survey</td>
<td>2 courses (10)</td>
<td>1 course (5)</td>
<td>2 courses, 2nd course may be double counted from an approved list of historical Analysis of Texts &amp; Works of Art courses (5-10)</td>
<td>Same (5-10)</td>
<td>2 courses, 2nd course may be from an approved list of historical Analysis of Texts &amp; Works of Art courses (5-10)</td>
</tr>
<tr>
<td>B. Analysis of Texts &amp; Works of Art (literature, visual/performing arts, cultures and ideas)</td>
<td>2 courses, no more than one from any category (9)</td>
<td>1 course (5)</td>
<td>2 courses, no more than one from any category, one course may double count as the 2nd history course, an A&amp;H ethics course may count as one of the two courses (10)</td>
<td>2 courses, no more than one from any category, one course may double count as the 2nd history course, an A&amp;H ethics course may count as one of the two courses, foreign lang. counts as a course in Literature or as a course in Culture &amp; Ideas (5 or 10)</td>
<td>2 courses, no more than one from any category, foreign language minor counts as a course in Literature and as a course in Culture &amp; Ideas (0 or 5)</td>
</tr>
<tr>
<td>Diversity Experiences</td>
<td>Social Diversity in the US - Double counted (0)</td>
<td>Diversity Experience - Double counted (0)</td>
<td>Diversity Experience - Double counted (0)</td>
<td>Diversity Experience - Double counted (0)</td>
<td>Diversity Experience - Double counted (0)</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>Waived</td>
<td>Waived</td>
<td>Waived</td>
<td>Waived Through 104 (5-20)</td>
<td>Waived Minor (20-50)</td>
</tr>
<tr>
<td>Issues of the Contemporary World*</td>
<td>Waived</td>
<td></td>
<td></td>
<td>Same</td>
<td>Same</td>
</tr>
<tr>
<td>Number of Credits</td>
<td>78</td>
<td>78</td>
<td>78-83</td>
<td>78 [78-98]</td>
<td>73 [93-123]</td>
</tr>
</tbody>
</table>

* All engineering students are required to take a capstone course in their major
Supplemental Attachment 2 – Partial Advising Sheet

Revised Version Partial Advising Sheet for Discussion Only
- Do not distribute.  2/25/05

ETHICS (5 hrs selected from either Ethics Group I or II.)

SOCIAL SCIENCES (10 hrs, No more than one from a group)
A. Ethics Group I
  Sociology 302, 464
B. Individuals and Groups
  African-American & African Studies 101, 218
  Anthropology 201, 202, 241.08
  Human Development and Family Science 360, 361, 364
  Journalism and Communication 101, 200, 431
  Linguistics 202, 361, 365, 371
  Political Science 201
  Psychology 100, 371
  Rural Sociology 378
  Social Work 230
  Sociology 210, 370, 380
  Textiles and Clothing 372
  Women’s Studies 110

C. Organizations and Policies
  Economics 201
  Family Resource Management 243
  Geography 460, 643
  International Studies 201, 230, 231, 235, 245, 250
  Natural Resources 400
  Political Science 100, 101, 165, 210, 245
  Rural Sociology 105
  Sociology 101, 345

D. Human, Natural, & Economic Resources
  Agricultural, Environmental, and Development Economics 200
  Economics 110, 200
  Family Resource Management 340
  Geography 200, 240
  International Studies 210, 215, 240
  Political Science 145
  Sociology 463, 466

ARTS & HUMANITIES (15-20 hrs)
A. Ethics Group II
  Philosophy 130.0X
  Comparative Studies 272
B. Historical Survey (10 hrs, *Class may double count for second history)
  African-American & African Studies 121-122
  Economics 515-516
  History 111-T12, 121-122, 141-142, 151-152, 171-172, 181-182
  Philosophy H71-H72
C. Analysis of Texts and Works of Art (5-10 hrs (5 if Ethics Group II), No more than one from a group.)
  1. Literature
     African-American and African Studies 154, 251, 254, 271, 345, 452, 455, 551
     Arabic 371, 372
     Chinese 251, 501, 502, 503, 504
     Classics 101*, 102*, 222
     Comparative Studies 100, 201, 202.01, 202.02, 203, 204, 205, H240, 271, 301, 306, 308, 374
     English 201*, 202, 220*, 260, 261, 262, 275, 280, 281*, 290*, 291*
     French 150*, 151, 152
     German 260.01, 260.02, 260.03*, H263, 291, 292*, 399*
     Hebrew 370*, 372*, 373, 374, 376
     Italian 161*, 162*
     Japanese 251, 252*
     Korean 291
     Modern Greek 371*
     Near Eastern Languages & Cultures 271, 371, 372, 374
     Persian 370, 371
     Russian 250
     Scandinavian 222
     Slavic Languages and Literatures 245

Proposed - 2nd History Criteria – Course should provide a broad chronological overview with special attention to the interrelationship of various types of change (e.g., economic, political, social, cultural, artistic, intellectual, and technological.)

Italics – May be offered in Honors Sections

Underline – Meets Diversity Requirement (Social, US/European or non-US/European)
## Supplemental Attachment 3 – Foreign Language Minor Requirements

<table>
<thead>
<tr>
<th>Language Minor</th>
<th>No. Of Engineering Students since Su 01</th>
<th>Prerequisites</th>
<th>Language Requirement</th>
<th>Literature Requirement</th>
<th>Other Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chinese</td>
<td>1</td>
<td>20 hours (101, 102, 103, 231 or 232)</td>
<td>15 hours - three options</td>
<td>5 hours - one of the following courses 251, 501, 502, 503, 504</td>
<td>10 hours from 501, 502, 503, 504, 514, 601, 602, 603, 641, EALL 683</td>
</tr>
<tr>
<td>French</td>
<td>1</td>
<td>15 hours (101, 102, 103 )</td>
<td>Two courses which vary depending on option</td>
<td>Options – literature, culture/film, professions, language/linguistics, French studies</td>
<td></td>
</tr>
<tr>
<td>German</td>
<td>2</td>
<td>20 hours (101, 102, 103, 104)</td>
<td>Consists of a minimum of 24 credit hours in German beyond the 104 level and can be designed according to the student’s particular interest. No specific courses are required; however, at least one course must be at the 400-level or above.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italian</td>
<td>2</td>
<td>20 hours 101, 102, 103, 104)</td>
<td>An additional 20 hours beyond the prerequisites with at least 5 hours from the language category and 5 hours from the literature category.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japanese</td>
<td>3</td>
<td>25 hours (101, 102, 103, 104, 231)</td>
<td>Required (15 hours) 205, 206, one of the following: 251, 252, 501, 600, 654, 655, 656, 665, 680, or EALL 683. Elective course (5 hours) 507, 508, 509, 510 &amp; 511, 610, 611, 612, 710, 711, 712</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Korean</td>
<td>1</td>
<td>25 hours (101, 102, 103, 104, 231)</td>
<td>Required (15 hours) 205, 206, 251. Elective course (5 hours) 507, 508, 509, 514, 600, 645, 654, EALL 341, 677, 683</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Romanian</td>
<td>1</td>
<td>20 hours (101, 102, 103, 104)</td>
<td>Consists of a minimum of 20 hours beyond 104. Romanian 130 or 235, Romanian 405 and 407, International Studies 231 may be substituted with the permission of the advisor.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Russian</td>
<td>2</td>
<td>20 hours (101, 102, 103, 104)</td>
<td>Required (10 hours) 405, 407. Additional Courses (10 hours) - Culture 135 or 250 (only one may be taken), Language 560,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spanish</td>
<td>6</td>
<td>Up to 20 hours (104 level)</td>
<td>Required (12 hours) – 401, 403, 450. Elective courses (8 hours) – 404, 406, 430, 536, 551, 552, 555, 556, 557, 560 (or H560), 561 (or H561), 580, 581, 601, 603, 604, 610, 630, 650, 660, H680, 693, 694, 697, H783</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Chinese Minor states “The purpose of the prerequisites is to give students a fundamental language and cultural basis upon which to build an understanding of China. The courses beyond the prerequisites are intended to provide substantial training in the Chinese language and further cultural understanding.”

The Japanese Minor states “The purpose of the prerequisites is to give students a fundamental language and cultural basis upon which to build an understanding of Japan. The courses beyond the prerequisites are intended to provide substantial training in the Japanese language and further cultural understanding.”

The Korean Minor states “The purpose of the prerequisites is to give students a fundamental language and cultural basis upon which to build an understanding of Korea. The courses beyond the prerequisites are intended to provide substantial training in the Korean language and further cultural understanding.”
9/26/05

TO: College Committee on Academic Affairs
    Core Curriculum and College Services Committee

FR: Bob Gustafson

RE: GEC Revision Proposal

C: Randy Smith, Office of Academic Affairs

You may recall that in February of 2004 we submitted a proposal for revisions to the Engineering GEC to the
Council on Academic Affairs. This proposal had been developed by the Core Committee over a fifteen month
period and then passed by CCAA in December of 2003. Until this summer it was under consideration by
Subcommittee C of CAA. During consideration by the Subcommittee we made some changes, based on their
suggestions. These changes are summarized in the attached memo to Mark Fullerton, Chair of the Subcommittee C
dated June 30, 2005. The full council considered the proposal during two of its meeting in August of 2005.
Although I have not yet received any official confirmation of the voting CAA, the purpose of this memo is report
what has been reported to me verbally and seek your guidance on future actions.

Anticipated Actions of CAA on Engineering GEC Proposal:

ENG GEC Recommendation 1 - Review of the 3rd Writing Course in the Major
CAA Action – Approve

ENG GEC Recommendation 2 – Encourage Foreign Language through Substitution
CAA Action – Not Approve

ENG GEC Recommendation 3 – Increase Social Science Category by one credit to 10 credits
CAA Action – Approve

ENG GEC Recommendation 4 – In the Category of Arts and Humanities (including history), require a total of 20
hours with the possibility that a course from Analysis of Texts and Works of Art could double count as the second
History Course
CAA Action – Not Approve. However, it is my understanding that three possible modifications to the A&H
category were suggested for our consideration. These three will be discussed below after reporting the other
actions.

ENG GEC Recommendation 5 – Create an Ethics Requirement in the Engineering GEC
CAA Action – Approve

Note that requirement would be presented somewhat differently than our original proposal. It would appear as a
requirement which can be fulfilled by either a course in the Social Science category or the Arts and Humanities
category. It would count as one course towards the requirement of the category within which it is taken. I think this
accomplishes what we had intended without the appearance of creating a new category in the GEC. It adds the requirement without increasing the number of hours within the ENG GEC or degree programs.

ENG GEC Recommendation 6 – Engineering Students be allowed to take one 597 University Capstone course for GEC credit.
CAA Action – Approve

ENG GEC Recommendation 7 – Expand the Category of Natural Sciences to Natural Sciences and Technology
CAA Action – Not Approve

ENG GEC Recommendation 8 – Expand the Category of Diversity to include International Issues
CAA Action – Not Approve

As I understand it CAA has three “Scenarios” on Recommendation 4 that they would likely support. None include reducing the GEC and Degree by one course as we had proposed. They are:

1. Two History and Two Other A&H (2 course in history survey (10 hrs), 2 courses from the rest of A&H (may include the Ethics requirement). This increases hours (9 to 10) from our current model to account for 5 hour course units.

An outline of a partial Advising sheet for this would look like the following.

**ETHICS** (5 hrs selected from either Ethics Group I or II.)

**SOCIAL SCIENCES** (10 hrs, No more than one from a group)
A. Ethics Group I
B. Individuals and Groups
C. Organizations and Polities
D. Human, Natural, & Economic Resources

**ARTS & HUMANITIES** (20 hrs)
A. Ethics Group II
B. Historical Survey (10 hrs)
C. Analysis of Texts and Works of Art (5-10 hrs (5 if Ethics Group II), No more than one from a group.)
   1. Literature
   2. Visual/Performing Arts
   3. Cultures and Ideas

2. Return to original proposal of One History but with three courses distributed across remainder of A&H categories.

**ETHICS** (5 hrs selected from either Ethics Group I or II.)

**SOCIAL SCIENCES** (10 hrs, No more than one from a group)
A. Ethics Group I
B. Individuals and Groups
C. Organizations and Polities
D. Human, Natural, & Economic Resources

**ARTS & HUMANITIES** (20 hrs)
A. Ethics Group II
B. Historical Survey (5 hrs)
C. Analysis of Texts and Works of Art (10-15 hrs (10 if Ethics Group II), No more than one from a group.)
   1. Literature
   2. Visual/Performing Arts
   3. Cultures and Ideas

3. Use a potential second history substitution through a course in another A&H category that has a historical perspective. This would be like our revised proposal but without the double count option.

**ETHICS** (5 hrs selected from either Ethics Group I or II.)
SOCIAL SCIENCES (10 hrs, No more than one from a group)
A. Ethics Group I
B. Individuals and Groups
C. Organizations and Polities
D. Human, Natural, & Economic Resources

ARTS & HUMANITIES  (20 hrs)
A. Ethics Group II
B. Historical Survey (10 hrs, *Class may substitute for second history, not a double count)
C. Analysis of Texts and Works of Art (10 hrs (5 if Ethics Group II) , No more than one from a group.)
  1. Literature
  2. Visual/Performing Arts
  3. Cultures and Ideas

* Classes we proposed are shown on attachment to the June 30 2005 memo attached.

If the actions of CAA are as outlined here, it is important that we move ahead. But it may be important to have input from both the Core Committee before CCAA formally responds to CAA. We as a College now have several options, at least as I see it.

Option 1. Accept the Recommendations approved and respond with a request for approval of one of the three options proposed by CAA. We would also need to give a proposed implementation date, since we are well past our project Au 05 proposed date.

Option 2. Request for reconsideration of any elements of their decision we so choose, with perhaps some additional discussion. Essentially continuing the process.

Option 3. Decide we will stay with our current GEC model.

I hope this memo will facilitate discussion by CCAA and the Core on this issue.