COLLEGE OF ENGINEERING COMMITTEE ON ACADEMIC AFFAIRS  
Meeting Minutes 1 December 2006

1. Attendance:  
   Aero – J. P. Chen  
   AVN – Not present (Chul Lee)  
   BME – Rita Alevriadou  
   CHE – Dave Tomasko  
   CEGS – Bob Sykes  
   CSE – Bruce Weide – Chair  
   ECE – George Valco  
   ENG PHY – Richard Hughes  
   FAB – Alfred Soboyejo  
   IWSE –  
      ISE – Blaine Lilly  
      WLD – Not present (Charlie Albright)  
   MSE – Not present (Rob Wagoner)  
   ME – Mike Moran  
   Graduate Student – Shivraman Giri, Justin McKendry  
   Undergraduate Student – Linda Wang (Not present Ashley Hand)  
   Secretary – Ed McCaul  
   Guests – Bob Gustafson, Rich Hart, Pam Hussen, Mike Hoffmann

2. The Minutes from the 27 October 2006 meeting were approved as written.

3. Bruce Weide informed the committee that Arts & Sciences has sent a revised version of their interdisciplinary minor in Sciences and Technology in Society to us. In our previous reply to Arts & Science we asked them either to change the name of the minor or to add a technology component. They decided to change the name and added a statement that “Completion of the minor does not imply competency in science or technological disciplines.” The last time we reviewed this proposal an ad hoc subcommittee consisting of Bruce Weide, Bob Gustafson, and Ed McCaul reviewed it. Bruce asked the committee if it was ok if the same ad hoc subcommittee reviewed. Blaine Lilly stated that he would like to be part of this subcommittee. There being no further discussion, Bruce stated that the subcommittee would report back to the full committee at its next meeting.

4. Bruce Weide reminded the committee that subcommittees do need to meet to discuss the proposals that have been assigned to them. Bruce suggested that the subcommittees meet at the same time and day of the week as the full committee as it is a day and time that most people are available. Everyone is busy and being busy is not a reason to keep proposals from being fully reviewed in a timely way.

5. Rita Alevriadou presented the Course Proposal Subcommittee’s recommendations to the Committee.
5.1. The Course Proposal Subcommittee recommended that the course requests for AV 324, AV 411, AV 414, AV 418, AV 510, AV 522, AV 532, AV 640, AV 642, AV 680, AV 701, AV 530, ECE 481, ECE 769, ECE 801.02, and ECE 857 be approved. Rita Alevriadou made a motion that the subcommittee’s recommendations be approved. Blaine Lilly seconded the motion. A vote was taken: 12 approved, 0 opposed, and 0 abstentions.

5.2. The Course Proposal Subcommittee recommended that the course requests for ENG 360, ENG 360.01, and ENG 360.02 be approved. The committee was informed that the History Department has been asked for a concurrence and that the courses will be submitted for GEC approval. The courses are not a two course sequence but rather alternative history-of-engineering courses that students could take for their second history course. Rita Alevriadou made a motion that the subcommittee’s recommendations be approved. Dave Tomasko seconded the motion. A vote was taken: 12 approved, 0 opposed, and 0 abstentions.

6. Dave Tomasko briefed the committee on the preliminary results of the study on the meaning of a credit hour. The subcommittee would like to get permission from the full committee to gather data which will be used to help determine if our current practices are consistent with the university’s criteria. It will be a long term project. The floor was opened for discussion.

6.1. The comment was made that it will be vital to correlate any data that is gathered and analyzed. Dave Tomasko replied that initially the effort would be toward collecting data and that the subcommittee plans on looking at a variety of variables.

7. There being no objections it was decided that the subcommittee could start gathering the necessary data.

8. Subcommittee A chair, Mike Moran, reported that Jerry Chubb has responded to some questions concerning the new Aviation Track Proposal but that he has not seen a revised proposal from Environmental Engineering yet. Bob Sykes stated that they have not finished revising the proposal but that it should be completed in the next couple of weeks.

9. Subcommittee B chair, Bob Sykes, presented a report from the subcommittee on the proposed Undergraduate Major in Biomedical Engineering (attached). The subcommittee unanimously recommends that the proposal be approved subject to two conditions:

9.1. That the proposal include the transition policy described in Rich Hart’s replies, with the addition that BSBME courses may be temporarily restricted to BME majors.

9.2. That the proposal include the new course syllabi (including ABET criteria covered) and approval forms.
10. The floor was opened for discussion.
10.1. The question was raised as to whether any courses outside of Biomedical Engineering were part of the curriculum. The response was yes. The suggestion was made that Biomedical get concurrences from those departments so that these departments could let Biomedical know if they can handle the influx of students. The comment was made that at this time it is impossible to tell if the students that chose Biomedical will be internal transfers or new students to OSU. Rich Hart stated that he will send the proposal after it is revised to all of the pertinent department chairs.
10.2. The question was raised as to what students are doing with this degree. Rich Hart responded that about one third go to medical school, one third go on to graduate school, and the other third go on the job market.
10.3. The question was raised as to the type of jobs the graduates get. Rich Hart replied that there is quite a range such as NASA, the FDA, and companies dealing with life sciences.
10.4. The question was raised as to whether we have similar data for all of our majors. The response was that the only data we have is what our graduates self report to the Placement Office. Based on that data about 20-25% of our graduates go on to graduate school.
10.5. The question was raised as to the type of jobs students with an advance degree in Biomedical Engineering get. The reply was that most of them get employed by various medical device companies.

11. The decision was made that a vote on the Undergraduate Major in Biomedical Engineering Proposal would not be held until the committee’s next meeting assuming that Biomedical has revised the proposal by that time, has received all of the appropriate concurrences, has met the subcommittee’s conditions, and that all CCAA members have had a chance to read the proposal before voting on it.

12. Dave Tomasko informed the committee that the CCAA-ASAP Study Committee has not yet met but will be meeting this winter quarter.

13. Mike Hoffmann presented a progress report on the technology updates to engineering specific classrooms that are in the classroom pool (attached). Mike informed the committee that the Classroom Readiness Committee normally plans two years in advance. We were able to get four rooms into their schedule for updating this summer in time for autumn quarter. The floor was opened for discussion.
13.1. The question was raised as to what this is costing the college. The reply was that the college is paying for 50% of the cost for two of the four rooms.
13.2. The question was raised as to the success rate of getting one of the technology equipped classrooms. The reply was that this varies depending on the location and time of day requested.
13.3. Several committee members thanked Mike for achieving progress on this difficult problem.

14. Ed McCaul updated the committee on the proposed Undergraduate Major in Globalization Studies. To date, two engineering faculty have expressed an interest in having their course included in the proposal. Their names and course information have been forwarded to Arts & Science.

15. The meeting was adjourned at 10:25 AM.

C: College Faculty
CCAA File
Background:
Departments and Colleges are under constant pressure to reduce the number of credit hours to graduation in order that students can more easily finish a degree in four years. At the same time, the budget structure of the university is such that dollars follow student-hours thus creating incentive to increase enrollment and/or credits within a particular unit. On a larger scale, state subsidies are allocated to the state-supported universities based on a credit hour formula and credit hours are the basis for transfer of credits between institutions. Therefore it would seem reasonable that somewhat consistent expectations should exist between institutions. In spite of these significant policy and budget decisions being based on credit hours, there is no clear definition of what constitutes a credit hour either at the university or state level and such conflicting pressures highlight the need for one.

The university provides criteria for assigning credit hours to courses (Rule 3335-8-24, see below). The criteria are based on time on task for the student. It is unknown how these criteria fit with expectations of instructors or the actual behavior of students.

Generally speaking, the College of Engineering relies heavily on a 3-credit course model while the Colleges of the Arts and Sciences follow a 5-credit course model. This leads to student perceptions (based on anecdotal evidence) that engineering courses require much more work per credit hour than non-engineering courses.

Since the university is currently undergoing a revision of the undergraduate general education curriculum and is giving consideration to credit hours to the degree it is possible (probable?) that the issue of what constitutes a credit hour will be a topic of discussion.

Proposal:
The College of Engineering should identify where it stands with respect to defining what constitutes a credit hour of instruction. It would be helpful to have an understanding of the standards and data of other institutions that may be available. Further, it would be useful for future curricular and budgetary discussions for us to know whether our current practices are consistent with the university’s criteria or alternative criteria that might be identified and to have data on the amount of student effort per credit hour.

Specific tasks:
1) Collect data on the amount of effort per credit hour for courses taken by students in the College of Engineering.
2) Identify trends among and between amount of time spent, grades, GPA, major, and credit hours in courses taken by engineering students.
3) Compare the characteristics of courses identified in 1 and 2 against the criteria provided by the university for assigning credit hours per Rule 3335-8-24.
4) Understand how our practice and data fit within the context of other institutions.

5) **3335-8-24 Credit hours.**

(A) All courses shall be assigned a number of credit hours in accordance with the procedure outlined in rules 3335-8-02 to 3335-8-04 of the Administrative Code. This may be any number from zero on up; however, in determining the credit hours assigned, the department, school, college and council on academic affairs should use as a guide the following suggested standards:

(1) One credit hour shall be assigned for each three hours per week of the average student's time, including class hours, required to earn the average grade of "C" in this course.

(2) One credit hour shall be assigned for each two consecutive hours of practical or experimental work per week in any department or school.

(3) One credit hour shall be assigned for each three hours of laboratory work per week, when no additional outside work is required. When outside work is required, then the standard in paragraph (A)(1) of this rule shall be applied.

(B) In determining the hours per week required by the course or work, the council on academic affairs may, in appropriate cases, consider the average weekly hours spent during a quarter, semester, or session on the course or work. It should be remembered that the above are guides only and may be deviated from for good cause.

(C) When comparing or combining semester credit hours with quarter credit hours, one semester credit hour shall be the equivalent of one and one-half quarter credit hours. (B/T 7/9/2004)
DATE: Thursday, November 30, 2006

RE: REPORT OF SUB COMMITTEE B RE: PROPOSAL FOR AN UNDERGRADUATE MAJOR IN BIOMEDICAL ENGINEERING

TO: Prof. Bruce Weide, Chair, College of Engineering Committee on Academic Affairs.

FROM: Robert M. Sykes, Chair, Subcommittee B

Dear Chair Weide:

RECOMMENDATION

Subcommittee B has reviewed the proposal for an “Undergraduate Major in Biomedical Engineering” that was submitted by the Department of Biomedical Engineering.

It is the recommendation of the Subcommittee that the proposal be APPROVED (Yes, 5; No, 0; Abstain, 0) subject to certain conditions:

1. That the proposal include the transition policy described in Rich’s replies, with the addition that BSBME courses may be temporarily restricted to BME majors.
2. That the proposal include the new course syllabi (including ABET criteria covered) and approval forms.

BACKGROUND

The Department of Biomedical Engineering was first organized in 2006, evolving out of the Biomedical Engineering Center, founded in 1971. It currently has 15 full or part-time faculty, and it offers Minors in Biomedical Engineering following tracks in chemical, electrical and mechanical engineering.

As of September 30, 2006, there were 36 ABET-accredited undergraduate BS Biomedical Engineering (or Bioengineering) programs in the USA, including four in other Big 10 schools and five in Ohio. Collectively these programs enroll over 12,000 students and graduate 2,410 students per year (2004-05). In October, six new programs were accredited, including one at the University of Cincinnati, which is the fifth such program in Ohio.

COMMENTS

1. Employment Opportunities
The US Department of Labor projects that employment in Biomedical Engineering will grow “much faster than average” through 2014.

2. Licensing

At present, there is no separate Fundamentals of Engineering Examination (afternoon session) for Biomedical Engineering, nor is there a Principles and Practice examination. However, the proposed program does prepare students to sit for and pass the general FE examination, and students in one of the domains can prepare for the Principles and Practice examination by focusing their course work on one of the traditional disciplines: e.g., students in the biomechanics domain can focus on mechanical engineering.

Members of the national biomedical engineering community are discussing the development of discipline-specific examinations for holders of the BS BME degree.

3. ABET

The core and domain courses will cover all the ABET criteria (a-m) required for accreditation.

4. Premedicine Students

Although the core courses do not include all of the usual premed courses required by most medical schools, the missing courses can be taken as professional electives.

5. Transitional Policies

Initially, the faculty staffing will not be complete, with one senior hire expected fall 2007 and another hire the fall of 2008. Also, most of the courses in the curriculum have not been taught before by the faculty. Consequently, enrollments will be limited in 2007-08 only to freshman. Both freshman and sophomores will be admitted in 2008-09; freshman, sophomores and juniors in 2009-10; and all classes by 2010-11. The 2007-08 freshman class will be limited to 25 students, and this will be increased to a projected admission rate of 75 per class by 2013-14.

During the phase-in, enrollment in biomedical engineering courses may be limited to majors. This will ensure that majors are able to enroll in the courses they need, and it will limit enrollments to manageable numbers (approximately 25 per section).
Near the end of the 2005-2006 academic year, the College of Engineering Committee on Academic Affairs passed a motion encouraging the College to take action to speed-up the process of technology enhancements to existing classroom-pool rooms. The motion resulted after anecdotal data and faculty survey data showed less than half the AU05 engineering classes held in classroom-pool rooms were in technology enhanced rooms.

Since that time, classroom-pool rooms for technology enhancements and support funding from the College have been identified. By AU07 quarter, BE285, BO318, CL137, and MQ162 will have basic technology added (ceiling mounted projector, screens, audio, and an interface/control panel). The costs are being shared by university classroom readiness funding and college technology funding. (Note: An additional 43 other rooms, campus-wide, will also be updated by AU07. At least 28 of these are in north campus.).

Although there is anecdotal evidence to suggest preferential scheduling can occur when a college/unit financially supports improvements, there is no guarantee of or formal policy for such a process.

The College will continue to monitor, and directly support when possible, the technology enhancements to classroom-pool rooms.

Summary:

Rooms to be improved with technology by AU07 due to college involvement:

   BO318
   CL137
   BE285
   MQ162

Another 43 rooms campus-wide (at least 28 are north campus) are scheduled for completion of technology enhancements by AU07.