Minutes of the CSM Senate Meeting
Held on February 11, 2013, Monday
2.30 – 4.00 P.M. at Dean’s Conference room

Members in attendance:
Catalin Zara, Mathematics, Chair
Chandra Yelleswarapu, Physics, Secretary
Bob Wilson, Computer Science
Juanita Urban-Rich, EEOS
Robert Stevenson, Biology
Marietta Schwartz, Associate Dean, CSM – representing the Chemistry department

Members absent:
Michelle Foster, Chemistry
Manickam Sugumaran, Biology

Others in attendance:
Andrew Grosovsky, Dean, CSM
William Hagar, Associate Dean, CSM
Eric Grinberg, Math (for part of the meeting, to discuss about the Engineering Mathematics and Math courses.)
Greg Sun, Walter Buchwald, and Tomas Materdey, Engineering program (for part of the Meeting, to discuss about the Engineering courses.)

Meeting was called to order at 2:42 pm.

Approval of the minutes of December 10th 2012 meeting: The CSM Senate members approved the minutes unanimously.

Updates on previous actions:
• Math 380 has been approved by the Academic Affairs
• MTT 580 has been returned to Math department for additional information
• EEOS 601 and 630 have been approved by the Provost office.
• EEOS 611 is waiting approval by the Graduate Affairs Committee.

3a. Change in requirements for Physics degrees
Replace the MATH 240 requirement with MATH 240 OR MATH 242.

Rationale: As part of their B.S. degree requirements, Physics and Engineering Physics majors have been taking Math 240, which is the third part of the calculus sequence. A few semesters back the Math department introduced Math 242, which includes more on vector calculus. This course is more useful for Physics and Engineering Physics majors. Hence the Physics department has been advising their students to take this more advanced class (242) though this is not reflected in the graduation requirements.
The requested change was pre-approved unanimously by the Senate. It will be sent to the Major, Honors, and Special Programs Committee.

3b. Course Addition: MATH 390 Mathematical Problem Solving SeminarCourse Description: This course is an undergraduate seminar on mathematical problem solving. It is intended for students who enjoy solving challenging mathematical problems and who are interested in learning various techniques and background information useful for problem solving. Pre-requisites: MATH 280

Rationale: "One of the better ways to develop mathematical abilities is by solving problems using a variety of methods. Familiarity with numerous methods is a great asset to the developing student of mathematics. Methods learned in attacking a specific problem frequently find application in many other areas of mathematics. In many instances an interest in and appreciation of mathematics is better developed by solving problems than by hearing formal lectures on specific topics."

Although this course is repeatable up to six credits, Mathematics majors (who are required to take a certain number of mathematics electives at the 300-level or higher) may count this course only once toward their upper-level elective requirement.

The proposed new course was pre-approved unanimously by the Senate. It will be sent to the Academic Affairs Committee.

3c. Course Addition: ENGIN 331 Electromagnetic Fields and WavesCourse Description: This course covers topics like vector analysis, electrostatic fields in vacuum and material media, stationary currents in conducting media, magnetostatic fields in vacuum and material media, Maxwell's equations and time-dependent electric and magnetic fields, electromagnetic waves and radiation, transmission lines, wave guides, applications. Pre-requisites: Engin232, Math 242, Physic 114, and Physic 182.

Rationale: This is a required course in any standard Electrical Engineering curriculum throughout the country. This course is to be taught at the junior level in the newly approved BS ECE program.

The aim of this course is to provide the basic skills required to understand, develop, and design various engineering applications involving electromagnetic fields. To lay the foundations of electromagnetism and its practice in modern communications such as wireless, guided wave principles such as fiber optics and electronic electromagnetic structures in photonic devices including those on the nano-scale scale. To provide basic laboratory exposure to electromagnetic principles and applications.

The Senate recommended that the one-form should mention existing Physics E&M courses and how this course is different. With this amendment the proposed new
The course was pre-approved unanimously by the Senate. It will be sent to the Academic Affairs Committee once the modified one-form is received.

3d. Course Addition: ENGIN 211 Engineering Mathematics
Course Description: In this course students will learn important math concepts and techniques they will need to study engineering topics such as circuit analysis, signal processing, electromagnetic fields and waves, etc. Topics include complex numbers and functions, Laplace transform, Fourier series and transform, first and second order differential equations, partial differential equations, vector differential calculus, matrix algebra, and probability and statistics. For each of these topics, engineering applications will be emphasized and when appropriate numerical solutions will be introduced. Pre-requisites: Engin 104, Math 242

Rationale: It is very important for students to have the right math tools when they approach the analysis of an engineering problem requiring those tools. In addition to the timely need of these tools at the beginning of the sophomore year, introducing them in one course with an emphasis to specific engineering applications will facilitate the learning process. For these reasons most EE programs offers a similar course in engineering mathematics with emphasis on specific applications. The Engineering program wants to have control and be responsive about the course material. In addition, as the course needs to be taught in Fall 2013, initially they want to teach the course. This course may eventually be taught by the Math department or on a team-teaching basis.

The Senate recommended a few modifications: a) Cross listing with Math; b) Need to stress the focus of this course as it covers a wide variety of techniques and to what extent the students will learn each of the mentioned techniques; and c) A memorandum of support from the Mathematics department. With these addendums the proposed new course is pre-approved unanimously by the Senate. It will be sent to the Academic Affairs Committee after the additional materials will be received.

3e. Program Changes: Change in requirements for the Computer Engineering and Electrical Engineering degrees
Rationale: The Engineering Program is seeking approval of minor modifications to the Computer Engineering (CE) and Electrical Engineering (EE) curricula. These modifications become necessary as they fine-tune the curriculum during the implementation phase of the newly approved programs. The goal is to prepare majors with the highest level of scientific knowledge, engineering training, and practical experience through development of quality curricula that are stimulating and flexible in fundamental and specialized topics not just in engineering but also in mathematics, basic sciences, and humanities. These changes are made in response to the need of better preparing students for their Engineering study and to increase flexibility in upper level Engineering and Thematic electives.

The proposed modifications in the CE and EE curricula are as follows.

1) A new course, Engineering Math (ENGIN 211), is introduced in the fall semester of the sophomore year. The course proposal is currently being submitted.
2) The course ENGIN 280 (Ethics and Impacts of Engineering) is eliminated as a requirement. The purpose of this course was to bring awareness to students of the consequences of their professional conduct as they practice. This purpose can be better served and appreciated by students by including ethics component in various Engineering design courses.

3) Students are required to take Math 242 instead of Math 240.

4) At least two Thematic Elective courses are required instead of nine (9) Thematic Elective credits. The thematic sequence is introduced to expose students to disciplines that are beyond of what is required for their major, so they can learn the vocabulary of other disciplines. This is particularly attractive to potential employers who appreciate the broad knowledge our students will be able to acquire. Depending on the area they choose, the two courses can have combined credits of 6 to 10. For students who want to study more in-depth in a given thematic area, they can do so with two more thematic courses in their senior year with combined credits of 6 to 10.

5) Two of the senior level Electives can be either from ECE or from a thematic area.

6) The total number of credits that are required for CE majors to graduate changes from 130 to a minimum of 127 to reflect the changes made above.

The new CE curriculum will still meet the ABET requirements. While ABET does not prescribe particular courses that must be included in a curriculum, it does, however, specify minimum requirements in subject areas appropriate to engineering.

The CSM Senate requested the Engineering program to make these changes in the one-form: a) In the Appendix, remove the credits and just itemize courses; b) Provide examples regarding how "Ethics and Impacts of Engineering course" will bring the awareness; and c) New version of the draft with no general education and list of requirements that ENG students need to meet.

A motion to pre-approve the proposed Program change in requirements for the Computer Engineering and Electrical Engineering degrees with the changes suggested above is unanimously passed by the CSM Senate. Once the revised document is received, it will be sent to the Majors, Honors, and Special Programs Committee.

4. Dean’s announcements: Dean Grosovsky announced that the Phase 1 draft proposals for Integrated Biosciences (Interface between Biology and other Science departments) and Computation Sciences are approved. He also discussed about the plans to develop a strategy for focusing on large classroom assignments and iterated the success of CSM. It has all time high rate of retention of students (89%, 5 points higher than campus wide and even more than Honors program). He also mentioned that there were a couple of gifts made to CSM.

5. Other business: None.

Meeting was adjourned at 4.10 pm.