

# Undergraduate Education Coordinating Committee

Conference Call Notes  
Monday, March 29, 2010  
1:00-2:30 PM EDT

## Participants:

Mufit Akinc, ASM  
Carl Boehlert, TMS  
Rudy Buchheit, UMC  
Jeff Fergus, TMS  
Beth Judson, ACerS/NICE  
Lyle Schwartz  
Harrie Stevens, ACerS/NICE  
Steve Yalisove, MRS

## Staff:

Greg Geiger, ACerS  
Warren Hunt, TMS  
Bob Makowski, TMS  
Tricia Nicol, ACerS  
Todd Osman, MRS  
Marcia Stoudt, ACerS

*Hosted by Warren Hunt, TMS Executive Director*

### 1. Roll Call of Participants

Warren Hunt welcomed the participants and noted that Bob Makowski, TMS Director of Professional Development and Publications, will be taking the staff lead responsibilities for the UECC going forward.

### 2. University Materials Council update on areas of need for UECC collaboration

Rudy Buchheit reported on some of the highlights of the Nov. 30 UMC meeting held in conjunction with the MRS meeting, with particular reference to areas where UECC interaction was relevant and desirable. (Note: a complete set of minutes and attachments from the UMC's meeting are accessible at <http://www.umatcon.org/files/minutes.shtml>)

- One discussion topic regarded MSE as a discipline (which was covered in Lyle Schwartz's March *JOM* article thanks to provision of the information by Peter Davies of UMC).
  - Reference was also made to a presentation in which Mert Flemings highlighted the importance of MSE to engineering disciplines, with the view that the focus on the materials tetrahedron in which integration of structure, processing, properties, and performance occurs is a core element.
  - The widening "chasm" between the "research" focus of departments and the need for training of students to meet industry needs was also discussed. With reference to the later point, the value of the UECC in providing a focal point for "customer input" from industry was highlighted as valuable.
3. Discussion of prospective joint projects. *For each project there will be a short outline of the project and a call for volunteers to lead development of each.* See the Recommendations in the article posted at (<http://www.tms.org/pubs/journals/jom/1003/schwartz-1003.html> ) for additional background.
- a) Project 1: Development of a UECC website as a common point of reference for Undergraduate Education in Materials Science and Engineering

The concept of having a common site for both posting of information and linking to other sites either of the UMC or the societies was outlined. The group felt that this would be a valuable resource. TMS offered to lead this area, with an outline of the proposed site to be developed first among staff and then with volunteer input over the next few weeks, with the goal of having a live site presence by early May. Bob Makowski will lead this activity.

- b) Project 2: Data sharing on ABET experiences and materials

A common location for sharing information related to ABET and accreditation was discussed. Such a common site does not currently exist. Some specific suggestions for inclusion were:

- Department self-studies (minus financial information)
- Information from departments on their experience and any weaknesses, obtained perhaps via questionnaire
- Best practices for assessment
- General input from evaluators

It was mentioned that efforts are underway to organize a workshop to share self studies and best practices as well.

Steve Yalisove and Jeff Fergus agreed to develop an outline for further discussion among the UECC by the next conference call. The suggestion was made that department heads be represented and it was agreed that Steve and Jeff would utilize their own department heads for this purpose.

c) Project 3: Compiling and sharing employment data for MSE undergrads

The idea here is to capture information both about where undergrads are being employed after graduation as well as get perspective from industry on what is needed.

Some specific suggestions were:

- Add a question to the Annual UMC survey regarding where the students were employed
- Find out not only where they were employed but what they were doing
- Include information from industrial advisory groups to departments where available

After the call, Beth Judson agreed to develop a description for this area for discussion by the group at the next call.

d) Project 4: Collecting and sharing data regarding current Master Degree programs

While the focus of the UECC is on undergraduate education, it is recognized that it is difficult to achieve the specialization needed at the undergraduate level. Often a master's degree or some other form of continuing education is the next step to achieve this specialization. The suggestion was to consider a "one time" exercise of compiling information about master's degree programs in MSE, perhaps addressing questions of:

- Number who pursue a research path or not
- Whether the masters is thesis or project-based
- Whether it is pursued immediately after the bachelor's degree or later.

The question of whether this would be something that the UMC would pursue independently or would want involvement of the UECC was raised. UECC involvement is desired.

Rudy Buchheit offered to develop an outline of this area, but not until the May time period.

e) Project 5: Collecting and sharing information in undergraduate core courses in MSE

Lyle Schwartz highlighted by way of introduction that it is important to understand what departments teach as core courses but that it is necessary to look one level down from the course title to assess this. He suggested that there would be value in developing a repository of core course descriptions from different programs.

Rudy noted that Ohio State had recently done a similar exercise in transitioning their curriculum from quarters to semesters, and noted remarkable overlap with the outline on p. 53 of the Schwartz JOM article with the addition of a computational techniques sequence. He also noted that it was relatively easy to benchmark other universities in this process.

It was noted that this type of exercise had also been done by Kevin Jones at the University of Florida through an NSF workshop approximately 1.5 years ago. It was also noted that this work would be valuable in establishing ABET benchmarks and for the community generally, as had been the case for the physics and civil engineering areas through the establishment of a “body of knowledge.”

Mufit Akinc agreed to develop an outline for this area for further review and discussion at the next conference call.

f) Project 6: Sharing of programming plans on educational issues at society meetings

Carl Boehlert noted that there was a developing effort to have a multi-society symposium on education at MS&T'11. Suggestions on topical areas of interest included:

- International experiences
- Cooperative programs and internships
- Mentoring younger faculty

It was also noted that the sharing of upcoming educational programming through links accessible from the common UECC website would be valuable.

g) Project ?: (Proposed by UECC participants)

While not conceptualized as a specific project, it was noted that centralization of the opportunities for students in terms of scholarships, awards, and poster sessions would

be valuable. It was agreed that coordination with the Material Advantage and MRS student programs should occur.

4. Future organizational planning

a) Coordination of activities

It was proposed that the work of the UECC continue on an ad hoc basis through the conference call approach. TMS will continue to convene the group.

b) Future meetings and schedule

A next conference call in early May was proposed. TMS will seek possible dates through a Doodle poll.

Compiled by Warren Hunt and Bob Makowski  
3/31/10