

# Texas Higher Education Coordinating Board and Lumina Foundation for Education

Minutes
Tuning Oversight Council for Engineering
July 30, 2010
10:00 a.m. to 3:00 p.m.

Texas Higher Education Coordinating Board Board Room (2.140)

**Members Attending**: Robin Autenreith, Klaus Bartels, Michael Casey, Kelvin Cheu (attending for Vivek Tandon), Dan Dimitriu, Jess Dowdy, Forrest Flocker, David Galley, Miguel Gonzalez, Alejandra Gonzalez (student), Tenerio Goodwin (student), Sheryl Harris, Butch Hayes, Jaime Hernandez (attending for Tongdan Jin), Drew Johnson (attending for A.T. Papagiannakis), Frank Lewis, Alan Morris, James Nelson, Pamela Obiomon, Mariano Olmos, John Pearce, Judy Perkins, Lynn Peterson, Thomas Pressly, Kenneth Rainwater, James Sells, Mukul Shirvaikar, Eric Taleff, Vijay Vaidyanathan (attending virtually), Nicholas Vasquez (student), David Wyrick, Victor Zaloom

**Facilitators and other Attendees**: Charlotte Biggerstaff, Reinold Cornelius, Harrison Keller, Kevin Lemoine, Araceli Ortiz, Debbie Rodriguez, Mary Smith, Marilyn Springle, Melinda Valdez-Ellis, and Michael Volonnino

Note: Documents and presentations referenced in these Minutes will be available online on a Tuning Website in September.

The morning portion of the meeting convened at 10:09 a.m.

## **Continental Breakfast, Welcome, and Review of Council Charges**

Dr. James Nelson, chair, welcomed members to the meeting and provided a brief overview of the agenda for the meeting and the tuning process. He requested that leaders speak to groups regarding the deliverables and process.

## **Introduction of New Council Members and New THECB Staff**

Chair Nelson asked that student members attending for the first time identify themselves. He welcomed them to the committee and asked for their open participation as equal members of the committees.

Dr. Mary Smith reviewed the grant and tuning process and the timeline for completion of the project. She described the contents of the packets, including the sample and four survey cover sheets. The timeline has been approved by Lumina, but will have to change slightly because of the timing in getting the surveys finalized and approved by the Coordinating Board's internal data collection committee. Surveys will be about one month behind the timeline document. She said that activities for today's meeting will include working on program-level outcomes. The goal is to have discipline-specific committees move into the course-level alignment by October 2010, and the final program-level outcomes completed and adopted by the Council in January 2011. Course descriptions and course learning objectives will be submitted to the Academic Course Guide Manual (ACGM) committee for consideration in March.

She reminded the Council that in discussing courses for alignment, only foundational courses that can be taught at community colleges will be discussed. There will be no changes to courses taught at the upper division in the university engineering programs. Many of the foundational courses (17) have already been described and determined for Mechanical Engineering, so the focus will only be on courses specific to the other engineering disciplines being tuned.

Dr. Smith asked anyone representing another committee member to identify themselves. Three members responded and are listed in the "Members Attending" section above.

# Approval of Summary Minutes from the May 21 Council Meeting

Dr. Nelson requested a motion to accept the minutes from the meeting on May 21. Dr. Victor Zaloom so moved. David Galley seconded the motion. A member expressed concern that there were a number of people who had attended the meeting not listed. Butch Hayes requested a change to the spelling of his name in the minutes. With the understanding that these corrections would be made to the May 21 attendee roster, minutes were accepted at 10:23 a.m. with five current meeting attendees abstaining.

### Council Discussion of Tuning Engineering Programs: Deliverables and Procedures

Dr. Nelson clarified the charge for the day. He reminded committee members that work should be done on the program outcome level and courses should not be included as yet. Lower-division courses only will be aligned to facilitate transfer from two-year to four-year institutions for engineering majors, but this will be done later on. Seventeen courses have already been done through the Mechanical Engineering Transfer Compact, so any course alignment still to be done will include only additional courses not already addressed that are needed for specific engineering specializations being tuned. The Electric Circuits course is an exception due to confusion in the ACGM, but this subject will remain for another time.

Chair Nelson then discussed the deliverables for the tuning committee, focusing on levels of competency. Group leaders were welcomed to embellish the discussion. Dr. Nelson emphasized that the committees could use their ABET Outcomes a-k, or anything they feel is useful. Once program outcomes are established, committees need to elaborate with about one page on each outcome to describe what it really means. This will be guidance for people considering the profession. Within those outcomes, committees should look at expectations at different levels. For example, where are students expected to be or perform coming directly from high school? Using Bloom's Taxonomy as a guide, committees should determine the level upon which to build. Committees will do this for each level (i.e., completion of community college, baccalaureate). He recommended that committees maintain a broad focus.

Then, for each competency, Dr. Nelson requested a description of skills that would be expected for students to demonstrate that level of mastery. Another product required will include the mapping of careers available to engineering graduates and the mapping of general coursework (subject areas) needed to achieve the degree. The last piece will be the horizontal alignment of foundational courses in the form of a chart resembling that done for the Mechanical Engineering Transfer Compact. The chart will

display the sequence of courses needed to prepare a student to transfer into a four-year engineering curriculum. If done correctly, the hope is that it may function as a 2+2. He summarized by dividing the project in half, with the first half described as the listing of outcomes and levels of expectations in the form of charts, and the second half as products that will help close the gap and increase student success in the STEM pipeline.

He asked for questions before breaking the Council into discipline-specific workgroups. He asked students to participate as full members of the Council and their respective committees and to be sure their perspective is considered.

A question regarding the surveys was posed. Surveys for students, employers, and recent graduates will go out shortly. Surveys for faculty will go out after the tuning process has been completed. Dr. Nelson asked participants to complete the Institutional Review Board documents to get surveys approved. Some information to help has been included in the packets. Dr. Smith clarified the process which will be followed in administering the surveys and what information will be gleaned. The student survey has been included in the packets. She asked for IRB approval to be requested on each campus, with August 15 as the goal for approval. She went over information on the IRB information in packets. All surveys will be done on Survey Monkey. Those who are teaching entry-level courses will be asked to provide the link to students to complete the survey. Dr. Perkins asked how recent grads will be identified, and Dr. Smith said that assistance will be needed from deans on campuses. The same information will be requested of all four groups, and the information will be compared. A member asked how the employer surveys would be completed, and Dr. Nelson asked that the question be tabled until the afternoon. A member asked about a template for outcomes, and Dr. Nelson clarified that Civil Engineering is the only discipline that has gone into such detail. He recommended that each committee use whatever format they wish, and if that includes the format used by Civil Engineering that is fine.

Dr. Smith introduced new THECB liaisons for each engineering group: Kevin Lemoine, Mechanical; Melinda Valdez, Electrical; and Reinold Cornelius, Civil. Araceli Ortiz has been working with the Industrial group since the beginning. Liaisons will assist chairs and co-chairs with logistics.

Dr. Nelson defined the charge: when civil engineers did their work, they "raised the bar." The purpose of this committee is to "define the bar." He adjourned the meeting to break-out sessions at 10:50 a.m.

#### **Breakup into Discipline-Specific Committees**

Members of each of the discipline-specific engineering committees met in four separate groups:

- Tuning Committee for Mechanical Engineering (Lonestar Room; 2.145);
- Tuning Committee for Electrical Engineering (Board Room; 2.140);
- Tuning Committee for Civil Engineering (Commissioner's Conference Room; 2.168); and
- Tuning Committee for Industrial Engineering (Pecan Room; 3.191).

Boxed lunches were served to provide time for a working lunch.

### Discussion of Surveys, Wrap Up, Looking Ahead, and Next Steps

The entire committee reconvened at 2:08. Dr. Smith summarized the surveys and the process for their administration and use. She requested assistance from each institution in getting approval of the Institutional Review Boards (IRB) on each campus. The survey was examined, and the THECB internal

process of approving the surveys through the agency's Data Collections Committee was described. She requested that institutions contact the THECB by August 16 to request any additional information needed for IRBs. Instructors in foundational courses for freshmen and sophomores will be asked to provide a link and information to their students to complete. Dr. Pearce requested that THECB staff provide the IRB information electronically. Dr. Gonzalez asked how employers' survey will be administered. Dr. Smith responded that advisory committees will be utilized, using names provided from each campus. THECB will then send information to the employers. Dr. Galley recommended that people within the organizations be selected for the survey who are supervisors of engineers or are otherwise familiar with the functions of engineers. It was also mentioned that UT-Austin does EBI surveys, which are essentially the same. For recent grad surveys, Dr. Smith stated that placement offices may be of help.

Dr. Nelson asked that each school provide a list of people, including name, title, organization, and contact information (email, if possible) of people to be contacted about completing the employers' surveys. He requested the information be provided to Mary Smith by September 1, 2010. Dr. Dimitriu suggested the addition of a "Gender" box to the students' and recent grads' surveys, and there is often a difference in perceptions between them.

Dr. Wyrick requested that THECB send information on letterhead explaining the surveys and requesting what is needed of the institutions by the end of the week of August 2-6. Dr. Perkins suggested that the administration of the employers' surveys might be facilitated by adding a space to student surveys for employment information to include name of supervisor and place of employment.

Dr. Smith concluded her remarks by discussing additional face-to face meetings of individual committees. She explained that there are somewhat limited grant funds for travel expenses. She requested that committees wishing to meet face-to-face between the Tuning meetings approach her with their requests. She will examine the budget to see if it is possible. Without this preapproval, such meetings cannot be reimbursed.

Dr. Nelson closed the meeting by outlining two last things that needed to be done. He expressed pleasure in what has been accomplished by the four discipline-specific groups up to this point, and suggested that the project may be at a point in which the community college representatives could begin meeting to discuss their specific concerns. He requested nominations for a chair of this committee. Bart Sheinberg was nominated and seconded as chair in absentia.

#### Adiournment

Members were reminded to complete the evaluation form. A motion to adjourn the meeting was made by Dr. Casey at 2:50 p.m., and seconded by another member. The meeting was adjourned.