Texas Higher Education Coordinating Board

Texas Higher Education Coordinating Board and Lumina Foundation for Education

Minutes
Tuning Oversight Council for Engineering
April 20, 2010
9:00 a.m. to 3:00 p.m.

Texas Higher Education Coordinating Board
Board Room (2.140)

Members Attending: April Andreas, Amarnath Banerjee, Shelley Caraway (attending for Homer "Butch" Hays), Michael Casey, Roderick Crowder, Freddie Davis (attending for Emily Hunt), Dan Dimitriu, Jess Dowdy, Saad Eways, Forrest Flocker, Rafael Gutierrez, Sheryl Harris, Tongdan Jin, Martin Knecht, Rahgava Kommalapati (attending for Judy Perkins), Frank Lewis, Stathis Michaelides, Jim Nelson (via teleconference), Pamela Obiomon, Mariano Olmos, Tom Papagiannakis, John Pearce, Lynn Peterson, Thomas Pressly, Kenneth Rainwater, Jamie Rogers, Philip Schmidt, James Sells, Bartlett Sheinberg, Mukul Shirvaikar, Bernard Smith, Eric Taleff, Vivek Tandon, Vijay Vaidyanathan, Sheldon Wang, Kathryn Wetzel, David Wyrick, Robert Yuan, and Victor Zaloom.

Facilitators: Bradley Carroll, Kevin Corcoran, Reinold Cornelius, William Evenson, Pamela Harris, Marcus Kolb, Gary Hanson, Kevin Lemoine, Brian Saam, Teddi Safman, Larry Smith, Mary Smith, Melinda Valdez-Ellis, and Nina Wright.

Note: Documents and presentations referenced in these Minutes will be available online on a Tuning Website within the next month.

The meeting convened at 9:00 a.m.

Welcome and Introductions

Mary Smith, Assistant Deputy Commissioner for Academic Planning and Policy at the Texas Higher Education Coordinating Board, welcomed everyone to the first Tuning Oversight Council for Engineering (TOCE) meeting. Dr. M. Smith provided a brief overview of the agenda and asked each council member to introduce themselves.

Election of Council Chair and Co-Chair

Kevin Lemoine, Deputy Assistant Commissioner for Academic Affairs and Research at the Texas Higher Education Coordinating Board, introduced Lumina Foundation for Education and Utah higher education representatives:

1. Kevin Corcoran, Program Director, Program Development, Lumina Foundation for Education;

2. Marcus Kolb, Program Director, Program Development, Lumina Foundation for Education;

3. Bradley Carroll, Chair Department of Physics, Weber State University;

4. Bill Evenson, Physics Professor Emeritus, Utah State Team and Physics Tuning Group Leader;

5. Brian Saam, Professor of Physics, Associate Dean, College of Science, University of Utah;

6. Teddi Safman, Assistant Commissioner for Academic Affairs, Utah State Board of Regent; and

7. Larry Smith, Chair, Division of Natural Sciences and Mathematics.

Dr. Lemoine called for nominations for TOCE Council Chair and Council Co-Chair. Jim Nelson, convening Council Chair and Dean of Engineering and Computer Science at The University of Texas at Tyler, was nominated. There were no other nominations, and Jim Nelson was unanimously elected as Council Chair. Sheryl Harris, convening Council Co-Chair and Dean of Business and Technology Division at Tarrant County College District, was nominated. There were no other nominations, and Sheryl Harris was unanimously elected as Council Co-Chair.

Tuning Process Overview; Questions and Answers

Mr. Corcoran and Dr. Kolb presented a PowerPoint that provided an introduction to the Tuning Process (see PowerPoint entitled "Tuning in Texas: A New Approach to Learning Outcomes in the Engineering Disciplines").

A member asked if other states engaged with the Tuning process also explored the field of engineering. Mr. Corcoran replied that Texas is the first state to examine the field of engineering in the Tuning process.

A member asked if the steps utilized in the Tuning process have been compared to the steps utilized by the Accreditation Board for Engineering and Technology (ABET). Mr. Corcoran replied that the Tuning process is complementary to ABET in that it seeks to define the elements of program outcomes with corresponding levels of achievement at critical milestones for engineering students. Mr. Corcoran asked members to refer to a document provided in meeting materials entitled "Tuning Engineering Programs in the Context of ABET Accreditation" for further information regarding the Tuning process and ABET accreditation. Dr. Evenson added

that the Tuning process connects university engineering programs with those at community colleges, whereas community colleges are not involved with the ABET process.

A member stated that the majority of community colleges provide the generic program of study for engineering students who will choose a specific area of specialization once they transfer to university. The member shared his concern that adequate community college representation in each of the four discipline-specific committees (i.e., civil, electrical, industrial, or mechanical) is vital to accurately implement what is needed for each discipline at the community college level. Dr. Kolb replied that the survey in the Tuning process allows for additional faculty, including community college faculty, to be involved in the initial phase of the process. Dr. Kolb added that in addition to the surveys, focus groups will be conducted for faculty members to discuss and provide their input into the Tuning process. Council Co-Chair Harris stated that there will be ample opportunity for community colleges to have a voice in the process as the individual committees report back to the larger council to learn from one another's feedback. Council Chair Nelson stated that the workgroups will interact and overlap with one another during the Tuning process.

A member asked if there will be an attempt to overlap courses where possible to enable for increased numbers of transfer students. Co-Chair Harris replied that a broader approach is needed in terms of what needs to be delivered in terms of engineering education and learning outcomes.

A member asked if the Tuning process is an articulation plan. Dr. Kolb replied that an articulation plan is not the purpose of the Tuning process; however, it is a natural outcome of the final work. Mr. Corcoran also replied that the Tuning process is more about what is needed in the first two years rather than a concrete articulation plan; it is a voluntary process.

A member asked if they should anticipate that more courses would be added to the Academic Course Guide Manual (ACGM) as a result of the Tuning process. Council Co-Chair Harris replied that additional courses would greatly benefit the students. Council Chair Nelson added that horizontal alignment of courses to facilitate migrating students from community colleges to four-year programs of study may be an outcome of the Tuning process.

Charges to the Tuning Oversight Council and Discipline-Specific Committees

Dr. M. Smith discussed the charges to the Tuning Oversight Council for Engineering, and in turn, to the discipline-specific committees. These charges are:

1. Create clear learning outcomes for students in each specified engineering discipline area. The sets of learning outcomes should be appropriate for each discipline and should not specify curriculum or pedagogy, which are the purview of individual institutions with their own missions, student demographics, and faculty strengths;

2. Facilitate surveys that will be carried out by the staff of the THECB regarding general competencies needed by graduates of the engineering disciplines. These surveys will be addressed to students, recent graduates, faculty, and employers appropriate to each of the disciplines. The discipline-specific committees will be asked to review the lists of

general competencies in the surveys and assist Coordinating Board staff in identifying survey recipients;

3. Facilitate surveys of faculty members that will be carried out by the staff of the THECB regarding discipline-specific knowledge and application needed by graduates of the engineering disciplines;

4. Map the employability of graduates in each discipline to positions in the labor market;

5. Draft degree profile of academic programs grounded in explicit learning outcomes;

6. Identify, on the basis of the agreed-upon learning outcomes at the lower-division level (i.e., up to the level of a certificate or an associate's degree), a set of courses that will provide the necessary academic background so students can migrate seamlessly into participating engineering programs at four-year universities; and

7. Provide an assessment of the process and recommendations for future discipline-level work to define outcomes.

Orientation to Charges

Council Chair Nelson presented a PowerPoint presentation entitled "Tuning Engineering Education: Vertical and Horizontal Alignment of Engineering Curricula."

Following Dr. Nelson's presentation, Dr. Safman referred to the PowerPoint slide entitled "Levels of Competence" in Council Chair Nelson's presentation and further discussed the relationship between competence levels within a discipline and the process of Tuning.

Break

Members of the Tuning Oversight Council for Engineering took a 15-minute break.

Navigating the Tuning Process

Drs. Carroll, Evenson, Saam, and L. Smith presented a PowerPoint presentation entitled "Introduction to Panel Discussion: Navigating the Tuning Process" and shared their recommendations with members regarding the navigation of the Tuning process in Texas.

A member asked for the survey return rate. Dr. Evenson replied that student survey return rate was approximately 90 percent, and the employer survey return rate was approximately 60 percent.

A member asked for the anticipated timeframe for involvement in the Tuning process. Dr. L. Smith replied that the anticipated timeframe from the beginning to the end of the Tuning process will be approximately 7 to 8 months.

A member asked to hear about stakeholder reaction to survey results. Dr. Evenson stated that there was a positive stakeholder response to the survey results.

A member asked for information concerning the IRB approval process and student surveys. Dr. Evenson replied that he secured expedited approval, and the details of his experience obtaining IRB approval would be made available to council members.

A member asked if there was one thing they would have changed during the Utah Tuning process. Dr. Evenson replied that the survey component of the Tuning process in Utah was not an adequate starting point, adding that it required less attention in the beginning than they gave it during the Utah Tuning process.

A member asked the Utah representatives what they would have changed about their survey if able to repeat the Tuning process. Dr. Evenson replied that they lacked time to personalize the Utah survey and would personalize it more if given the chance to repeat the process. Dr. Evenson added that he didn't feel modifications of the survey would produce significant differences in the survey results.

A member asked if Utah was charged with mapping the employability of graduates. Dr. Evenson replied that they utilized data from the American Institute of Physics and information from alumni organizations.

A member commented on the difficulty of tracking students once they leave a community college campus to attend a four-year university. Dr. Safman replied by emphasizing the importance of addressing the issue of transferability when implementing the Tuning process. Dr. Lemoine stated that the THECB is working toward student tracking improvements via the Texas common application process.

A member asked if a function of understanding the Tuning process includes students being able to describe the concepts in their lower-division courses and how to apply them to upper-division courses. Drs. Evenson replied that the Tuning focus is on outcomes: what students need to know, what students need to understand, and what students should be able to do.

Luncheon with Informal Discussion

Members adjourned for lunch and informal conversation.

Description of Breakout Sessions for Discipline-Specific Committees

Dr. M. Smith directed members to the meeting document entitled "The Texas Voluntary Engineering Transfer Compact" and asked members to review the reading materials on their own.

Drs. Safman and Evenson presented a PowerPoint presentation entitled "Agenda for Breakout Sessions: Discipline Committees."

Breakout Planning and Discussion Sessions for Discipline-Specific Committees

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

1. Members of the Mechanical Engineering Committee and Dr. L. Smith, Dean of Natural Science and Mathematics and Professor of Physics and Mathematics, Snow College;

2. Members of the Electrical Engineering Committee and Dr. Saam, Professor of Experimental Atomic Physics, Magnetic Resonance, The University of Utah;

3. Members of the Industrial Engineering Committee and Dr. Carroll, Chairman, Physics Department, Weber State University; and

4. Members of the Civil Engineering Committee and Dr. Evenson, Physics Professor Emeritus, Utah State Team and Physics Tuning Group Leader.

Discipline-Specific Committees Report Out to Full Council

Chairs of the Discipline-Specific Committees returned to discuss the resulting conversations from the breakout planning sessions.

The Civil Engineering Chair, Kenneth Rainwater, Professor, Civil Engineering at Texas Tech University; Director TTU Water Resources Center, commented on the preliminary discussions of the Civil Engineering Committee.

The Electrical Engineering Chair, Roderick Crowder, Professor; Engineering Curriculum Chair in the Dallas County Community District, commented on the preliminary discussions of the Electrical Engineering Committee.

The Industrial Engineering Chair, David Wyrick, Professor; Bryan Pearce Bagley Regents Chair at Texas Tech University, commented on the preliminary discussions of the Industrial Engineering Committee.

Mechanical Engineering Committee Member April Andreas, Instructor, Math/Engineering, McLennan Community College, commented on the preliminary discussion of the Mechanical Engineering Committee.

Wrap Up, Looking Ahead, and Next Steps

Dr. Kolb commented on the high quality of each of the committee's conversations during the breakout planning sessions. Dr. Kolb reiterated the learning outcome focus of the Tuning process.

Dr. M. Smith commented on future meeting dates/sites for council members. Dr. M. Smith asked council members to mention dates that are not favorable for a future meeting. The majority of council members cited Friday as the best possible day of the week for the next meeting.

Council Co-Chair Harris concluded with asking council members to suggest alternative ways to meet other than face-to-face communication.

Mr. Corcoran informed council members that they can expect their first cycle in the Tuning process to be complete in approximately 8 to 12 months.

Dr. M. Smith informed members that she would be in touch via e-mail about the next meeting. She concluded by thanking council members for their time and interest in serving on the Tuning Oversight Council for Engineering.

Adjournment

The Tuning Oversight Council for Engineering meeting adjourned at 2:53 p.m.