



Texas Higher Education Coordinating Board

Texas Higher Education Coordinating Board and Lumina Foundation for Education

**Approved Minutes (with Corrected Attendee Roster)
Tuning Oversight Council for Engineering
May 21, 2010
9:00 a.m. to 3:00 p.m.**

Texas Higher Education Coordinating Board
Board Room (2.140)

Members Attending: Robin Autenrieth, Klaus Bartels, Michael Casey, Roderick Crowder, Dan Dimitriu, Jess Dowdy, Saad Eways, Forrest Flocker, David Galley, Miguel Gonzalez, Rafael Gutierrez, Sheryl Harris, Homer "Butch" Hayes, Emily Hunt, Tongdan Jin, Martin Knecht, Rahgava Kommalapati (attending for Judy Perkins), Frank Lewis, Stathis Michaelides, Alan Morris, Jim Nelson, Pamela Obiomon, Mariano Olmos, John Pearce, Kenneth Rainwater, Jamie Rogers, Bartlett Sheinberg, Mukul Shirvaikar, Bernard Smith, Eric Taleff, Vijay Vaidyanathan, Sheldon Wang, Kathryn Wetzel, Robert Yuan, and Victor Zaloom.

Facilitators and other Attendees: Charlotte Biggerstaff, Reinold Cornelius, Gary Hanson, Pamela Harris, Trey Hollingsworth, Drew Johnson, Harrison Keller, Kevin Lemoine, Araceli Ortiz, Zhou Qiaoying, Debbie Rodriguez, Sarah Rondinelli, Mary Smith, and Melinda Valdez-Ellis.

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.

Continental Breakfast, Welcome, and Review of Council Charges

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

Introduction of New Council Members and New THECB Staff

Dr. Smith introduced new THECB staff members and asked new Council members to identify themselves.

Approval of Summary Minutes from the April 20 Council Meeting

On motion by Stathis Michaelides, seconded by Miguel Gonzalez, the April 20, 2010, Tuning Oversight Council on Engineering meeting minutes were approved.

Council Discussion of Tuning Engineering Programs in the Context of ABET Accreditation

Jim Nelson, TOCE Chair, presented a PowerPoint presentation (see PowerPoint entitled "Tuning Engineering Education: Vertical and Horizontal Alignment of Engineering Curricula Revisited").

A member asked if the matrix will be developed for both two-year and four-year institutions. Chair Nelson replied that it will not; the matrix will be developed for the body of knowledge with outcomes, one row for each outcome and each level of comprehension.

A member commented that the presentation implies that all students receive postgraduate education. Chair Nelson apologized for the postgraduate education assumption and informed the Council he would modify the presentation to omit any such reference. The same member asked how the Accreditation Board for Engineering and Technology (ABET) objectives will be addressed in the process. Chair Nelson informed the Council that any work accomplished with the Tuning Program will not change the desired accomplishments for ABET objectives.

A member asked if the levels of competence (i.e., knowledge, comprehension, application, analysis, synthesis, and evaluation) could be approached with a dynamic linkage between each level. Chair Nelson replied that a linkage of the levels of competence can be addressed as the Council moves forward.

A member asked if the body of knowledge outcomes charged to the Council are aligned with ABET, A-K. Chair Nelson replied that he fully expects that ABET, A-K, to be imbedded in the final outcomes that will be developed by the Council.

A member commented on his confusion concerning the four-year program variables that need to be developed by the Council and how to align the four-year program variables with variables at the two-year level. Chair Nelson replied that the variables in question are two separate entities; one is vertical and one is horizontal. Chair Nelson further explained that the vertical process is examining what competencies are being developed within each stage (see slide #3, "The Educational Pyramid").

Sheryl Harris, TOCE Co-Chair, informed the member that he was correct in that the Council's task is determining what the entry level should reflect for individuals entering into the engineering profession. Co-Chair Harris further explained that the Tuning process will enable students to become competent individuals in the engineering profession after completing a program of study at their respective institutions.

A member asked if the Council should consider emerging high school engineering programs and community college engineering preparedness programs. Chair Nelson agreed that secondary and two-year programs should be considered.

A member suggested that the first two years of study should be focused on building engineers, without a focus on an engineering specialty, and asked the Council if they were familiar with professional licensing procedures. The Council member further discussed that they should present a foundation of engineering to beginning students before presenting specializations (the Council member utilized the medical school program of study as an example).

A member stated that while he agreed with the former Council member's comment, he feels the field of engineering doesn't have the luxury to attempt what medical school programs are able to accomplish for their students.

Kevin Lemoine, Deputy Assistant Commissioner for Academic Affairs and Research at the Texas Higher Education Coordinating Board, commented on what is required of Council members. Dr. Lemoine discussed that minimal loss of credit is the focus of the Council, as is timely graduation.

A member asked THECB representatives if there is a plan to utilize an examination to determine the quality of classroom programs. Chair Nelson replied that higher education institutions are currently signing onto the mechanical compact that states that they agree to assess their progress. Chair Nelson continued that the future might hold a scenario that awards associate degrees for pre-engineering programs (that fall under ABET accreditation) at the community college level.

A member spoke to the program quality issue by emphasizing the importance of defining what needs to be taught in each community college course in order to expose students to the necessary topics required for success in a four-year engineering program.

A member commented from the community college point-of-view. The member stated she is unable to teach six different approaches to the introduction to engineering; she has to teach several different approaches of basic engineering topics to address each discipline of engineering. The member felt the introduction to engineering classes are too specific and should be more general in nature.

Chair Nelson stated that it is important to ensure students have mobility. Chair Nelson discussed three different philosophies of the introduction to engineering course:

1. It should expose the fundamentals of engineering in order for students to decide if they wish to pursue the field of engineering with further study;
2. It should expose the different fields of engineering and the interaction of the different fields of engineering, and introduce soft skills required of the engineering profession; and
3. It should expose only one area of the engineering discipline (e.g., electrical engineering only, or chemical engineering only).

Co-Chair Harris summarized the Council's discussion by reiterating the Council's charges.

Breakup into Discipline-Specific Committees

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

1. Tuning Committee for Mechanical Engineering (Lonestar Room; 2.145);
2. Tuning Committee for Electrical Engineering (Commissioner's Conference Room; 2.168);
3. Tuning Committee for Civil Engineering (Bluebonnet Room; 3.192); and
4. Tuning Committee for Industrial Engineering (Cactus Room; 3.190).

Luncheon

Members adjourned for lunch and informal conversation.

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Discipline-Specific Committees Report Out to Full Council; and Wrap Up, Looking Ahead, and Next Steps

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

Dr. M. Smith discussed student nominations and nomination forms, the importance of submitting travel receipts in a timely manner for purposes of providing accurate budget information to Lumina, possible dates for the next meeting of the Council, and plans for using distance meeting software to save travel funds for discipline-specific committee meetings. Dr. M. Smith encouraged Council members to complete the evaluation forms regarding the current meeting to enable qualitative evaluation of Tuning processes in Texas.

A member requested a summary of the engineering status at the high school level during the next meeting. Chair Nelson replied that they will consider the preparation of a summary of engineering programs at the high school level.

A member commented on high school dual credit courses and how to incorporate them into four-year institutions, and not just into community colleges.

Chair Nelson asked Council members if they would like to have a K-12 representative as an observer in the next meeting.

A member asked if a regional service center member might be invited, instead of a member of an independent school district, to attend the next meeting as an observing visitor.

A member commented on inviting academic advisors to attend the next meeting.

Debbie Rodriguez, THECB Program Specialist, suggested inviting Texas Education Agency (TEA) representatives (career and technology) in place of regional service center representatives.

Adjournment

The Tuning Oversight Council for Engineering meeting adjourned at 2:38 p.m.