

A Summary of the
Virtual Conference on Proposed Changes to ABET Engineering Accreditation Standards
(Held on 6-8 March 2016 in Preparation for the ASEE Interdivisional Town Hall Meeting)

The following is a summary of a Virtual Conference on the proposed changes to ABET's accreditation standards, held in preparation for the ASEE Interdivisional Town Hall Meeting, which will take place in New Orleans on 27 June 2016, 3-4:30pm ([Session M534](#)). A total of 47 delegates representing 21 ASEE Divisions participated in the event, generating a total of 209 comments and approximately 4000 views.

This summary is composed by a Feedback Committee consisting of willing members from the Town Hall Planning Committee, the co-sponsoring ASEE divisions, and the ASEE Accreditation Activities Committee. Per approved protocol, it is our intent to summarize the comments that were posted during the virtual conference without much interpretation or evaluation. In other words, this is meant to be an index into the comments themselves, which may be found permanently archived at the [virtual conference site](#). (Please click on individual criteria to view the original comments).

Major Themes

The following were the major themes to emerge from the Virtual Conference:

The Positive Changes: As with any solicitation for input, a majority of the comments posted at the site dealt with suggested changes to the current proposal. This being said, it is important to note that the participants recognized a number of positive changes including: a new framework; new definitions; effort to situate skills in a professional context; a focus on assessability; an operational definitions of teamwork and lifelong learning (that focused on information literacy); and the acknowledgement of different audience for communication. They also acknowledge the general validity of, and need for ABET to carry out operational reviews of its own criteria, and its desire to simplify assessment and to bring greater consistency to program evaluation

A Need for Clearer Definitions & Additional Definitions: First, there were a number of comments related to the need for clearer definitions. Basic science and engineering design were among the key terms (in the new definition section) that those participating felt were in need of a more precise definition in order to reduce ambiguity during program evaluation. It was also suggested that a clear definition of "synthesis" be added to the list of definitions in the new introduction to the criteria; one participant questioned whether synthesis was the appropriate term for the intended outcome.

Engineering Judgment and Preparation for Professional Practice: The participants noted the new focus on engineering judgment and preparation for professional practice, with some ambivalence. While some supported this change, others that expressed the concern that a capacity to exercise professional judgment, and the goal of fully educating students for professional practice (as opposed to training the fundamentals of professional practice) exceeds what can be reasonably accomplished in an undergraduate degree program. It was noted that engineering programs should educate students for more than the professional practice of engineering. Either way, there is agreement that curricular changes, including changes to capstone experiences and perhaps a required course in engineering ethics, would be necessary to support this new objective. Associated changes to assessment instruments will also be necessary to measure engineering judgment and preparation for professional practice.

Lack of Integration between 'Preamble' & Outcomes 3 & 5: While there was near unanimous support for the new framework items—Items i) – iii) in the new introduction to the criteria—there was concern about whether these were simply aspirational statements, or additional outcomes that would be subject to assessment. As noted by one of the members of the Feedback Committee, the participants are “operating under the assumption that there is a hierarchical structure to the Criteria, which can be found in such comments as ‘demoting health and safety to the preamble.’ It seems that their [implied] hierarchy is, in decreasing order: Criterion 3; being mentioned in one of the other criteria; and then the ‘preamble.’” While this might not be ABET’s intent, this suggests that programs may read the criteria in this manner, which will affect accreditation practice. The participants request that there be greater clarity and/or better guidance with regards to how the framework items and definitions in the introduction are handled during accreditation reviews. There were those who felt that if the framework items are intended to be student outcomes, they ought to be listed in Criterion 3.

Assessment & Combined Outcomes: Multiple participants noted that combining learning outcomes does not make assessment easier (Mainly Criterion 3, Outcomes 1, 5 & 7). While there is some disagreement about whether assessment will be easier or harder under the proposed new criteria (a majority of those commenting felt assessment would become harder), it was suggested that programs are likely to disaggregate the different skills mentioned identified in a combined outcome and assess them separately. Likewise, there was the worry that there was an effort to pack too much into a single outcome, especially with regards to Outcome 5. Some participants suggested that separate outcomes needed to be listed separately, although the work that a combined outcomes did in terms of establishing the relevance of a particular skill set to the context for professional practice was recognized.

An Intended Escalation vis-à-vis Bloom’s Taxonomy? It was noted that several changes in wording significantly elevate the requirements for student performance vis-à-vis Blooms Taxonomy. The appearance of engineering judgment in Outcome 3 (experimentation); the jump from understanding to informed judgment in Outcome 5 (professional responsibility and ethics) represents a shift from one of the lower levels of learning to the highest level of achievement in Bloom’s Taxonomy. It was suggested that especially if the definitions and aspirational framework found in the new introduction to the criteria are also translated into requirements under Criterion 3, the new proposed standard maybe significantly more, not less difficult to achieve. At a minimum, this would introduce new assessment criteria into the evaluation process.

Lowering the Bar / Rationale for Change: By contrast, many appeared to be concerned that the proposed criteria relaxed key requirements for the profession that were central to the EC 2000 reforms. Thus, despite the reintroduction of various “professional skills” during the revision process, that was the concern that in its effort to make the criteria more assessable, the new criteria narrowed the scope of what students were expected to learn. This occurred both through further specification and the combination of previously separate outcomes. Problem formulation was narrowed to the application of engineering, science, and math; lifelong learning was translated into information literacy; and global, economic, environmental, and societal contexts were evaluated only in terms of impacts as opposed to being positive inspirations for engineering work. There was also concern about subtle changes in language, such as the shift from “politics” to “policy”; “society” to “societal”; “environment” to “sustainability,” and what this implied as to content. Some also expressed concern about moving the reference to “broad education” from Criterion 3 to Criterion 5, and the lost reference to quantitative standards for general education. As suggested by one member of the feedback committee, some seemed to feel that the proposed criteria represented “a move away (rather than toward) what industry (and other stakeholders) want in our graduates” and that “the changes seem to be driven more by

backward looking (about what was not working in ABET 2000) and not forward looking to where the field seems to be going.”

Omitted Outcomes / Additional Desired Outcomes: Participants expressed serious concern about the omission of the reference to “multidisciplinary” teams and “knowledge of contemporary issues.” Both were considered fundamental to engineering education, and therefore something that ought to remain within Criterion 3. Meanwhile, diversity, inclusion, sustainability, entrepreneurship, innovation, and a focus on human behavior were all proposed, mostly by specific individuals but with the assent of other participants, as additional, fundamental requirements for engineering education that should be considered under Criterion 3. The participants also suggested the possibility of including “project management” or “engineering management capabilities” as among the desired outcomes.

Other Comments: Other comments of interest include: reference to the International Engineering Alliance’s *Graduate Attributes* as a useful point of reference; the desire to have criteria that are scholarship-based as opposed to survey-driven; and the need to ensure that the accreditation standards keep in mind the diverse career paths of our graduates and not just the requirements of engineering practice. With regards to curricular requirements under Criterion 5, there was also the remark that “time is not an acceptable proxy for understanding in a-k/1-7 [as] individualized approaches to learning become more mainstream.”

Comments Related to Process: There were also a number of comments related to process. However, the focus of the ASEE Town Hall meeting is for providing specific feedback to ABET with regards to the proposed changes, and not process. Other than noting here that the posted comments contain references to a desire for greater transparency; broader consultation in formulating changes; stated rationale for proposed changes; and additional documents and guidelines that elaborate on the expectations that are to accompany new accreditation standards, we simply refer ABET and others to the original comments for this information.

Feedback Committee, ASEE Interdivisional Town Hall Meeting

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- Kevin Hall
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(*Chair, ASEE Accreditation Activities Committee. All members of this committee have also been given this document for review.)

Note: We are also preparing an Appendix that lists all specific suggestions made by participants during the Virtual Conference. This will be transmitted separately at a later date.
