

**ASCE “Raise The Bar” Newsletter
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**By: Committee on Academic Prerequisites
for Professional Practice (CAP³)**

Welcome to the fourth edition of our newsletter. We continue to make major progress in ASCE’s “Raise the Bar.” Still, there is far more left to be done, than has been done to date to achieve successful implementation. This newsletter will highlight some of the recent work being done by the CAP³.

The **CAP³ Accreditation Committee** has been formulating draft *ABET civil engineering program criteria*. The goal of this endeavor is to incorporate the basic components of the Body of Knowledge (BOK) into undergraduate civil engineering criteria with the exception of *Outcome 12-technical specialization*. The Accreditation Committee has also been working on modifications to the ABET advanced level general criteria to provide assurance that graduates of a master’s program in civil engineering have fulfilled the complete civil engineering body of knowledge. To this end, the committee has been working on the enablement of ABET accreditation for master’s programs. This effort is not to mandate accreditation of master’s program but rather to enable those that choose. The committee is also working on a DRAFT commentary to the revised criteria for civil engineering programs. A draft of the criteria and commentary will be released for public comment at the *June 2005 American Society for Engineering Education* meeting. In general, *flexibility* is being sought to allow universities to efficiently obtain accreditation of both undergraduate and graduate programs of the same engineering discipline. Such flexibility does not exist within current interpretations of ABET policies.

The **CAP³ Curricula Committee** consists of 18 Civil and Environmental Engineering Departments and several representatives from ASCE institutes. They have been reviewing the BOK and mapping their existing curricula against the BOK. They have concluded that obtaining the BOK in a bachelor’s program is simply not feasible. The committee has also been looking at how to better define the levels of competence for each outcome as well as how to assess the attainment of the level of competence for the 15 outcomes.

The **CAP³ Licensure Committee** has continued to provide input to CAP³ and to each of its committees from a licensure perspective. The Licensure Committee has recently given a presentation to the Wisconsin Licensure Board. They are preparing to participate in the National Council of Examiners for Engineering and Surveying (NCEES) zone meetings in the spring of 2005. Our team is participating with the NCEES Licensure Qualification Oversight Group, which is charged with recommending modifications to the NCEES Model Law to require additional engineering education beyond the bachelor’s degree as a prerequisite for licensure. The Model Law is a policy template promulgated to assist individual jurisdictions when they work with their legislatures to make changes to their engineering statutes. Potential changes to the Model Law are first considered by NCEES at the national level. At the 2004 Annual Meeting, NCEES voted to initiate the process of evaluating “raising the bar” in engineering education and incorporating additional engineering education requirements into the Model Law. Additional engineering education requirements will be discussed at the spring 2005 NCEES zone meetings, and may be voted upon at the 2005 NCEES Annual Meeting in Memphis.



Other engineering disciplines will be critical to long-term success in requiring additional engineering education and changes to the *NCEES Model Law*. Changes to the NCEES Model Law would pertain to all disciplines across the board. ASCE is working closely with the Boards of IEEE-USA and NSPE to seek multi-society approval of a PowerPoint presentation intended to apply to all disciplines, for use throughout the engineering profession. NSPE President Dr. Bobby Price, PE has charged the NSPE Licensure and Qualifications for Practice Committee with formulating a national program to generate state by state support for additional engineering education requirements. The details of such a program are anticipated to come before the Board of NSPE in 2005.

The **CAP³ BOK Fulfillment and Validation (F&V) Committee** began its work in the fall of 2004. The report, *Civil Engineering Body of Knowledge for the 21st Century*, identifies several paths to attainment of the BOK. The BOK could be fulfilled by obtaining a Bachelor's degree plus either a Master's degree or approximately 30 acceptable credits & experience ("B + M/30 & E"). The "E" in "B + M/30 & E" refers to progressive, structured engineering experience which, when combined with the educational requirements, *results in attainment of the requisite Body of Knowledge*. "B + M/30" represents two different, but related methods to satisfy the educational requirements for entry into the professional practice of civil engineering. Both are equally satisfactory in fulfilling the BOK requirements.

Some of those seeking to fulfill the BOK will follow the traditional path of matriculation at institutions of higher learning. Some may choose to attain the BOK through a combination of campus-based education and courses offered by non-traditional providers. A critical challenge in including non-traditional approaches to completing fulfillment of the BOK is to ensure that the education provided by these organizations meets the standards of quality and rigor found in and expected of colleges and universities and that the additional courses taken fulfill the educational component of the BOK. To this end, the BOK F&V Committee was charged with: recommending means to validate the fulfillment of the BOK attained through distance education, corporate universities, public agency courses, and professional society offerings; determining how to describe, measure, and assess the quality of this type of education; preparing typical guidance to be used by young civil engineers for designing programs that will fulfill the BOK and for documenting the results; and coordinating its alternatives and recommendations with the Licensure, Accreditation, and Curricula Committees.

Regarding the B+30 path, there are a many organizations offering post-graduate professional education. Universities offer non-degree and certificate programs that include a large number of courses that would be relevant to attainment of the BOK. Some of these courses are offered by departments in which ABET accredited programs exist. Other courses are offered by department with no association with ABET or no association with engineering. As the requirements for continuing professional development (CPD) have been mandated for re-licensing of engineers and the profession in general has moved toward support of life-long learning, many for-profit and non-profit organizations, government agencies and engineering firms are offering both CPD and more formal graduate equivalent courses. Both those in the universities and those outside programs offer courses and, in some cases, programs or degrees through distance learning methods. The committee is investigating several approaches that could be used to deal with the need, in the B+30 program, to ensure that organizations offering courses are of a quality that parallels the quality of universities and to ensure that the approximately 30 courses taken, as a group, fulfill the educational component of the BOK. Education's long history in accreditation clearly indicates that accrediting bodies do not accredit courses; rather, they accredit the organizations and programs that provide the courses and expect that these organizations will offer courses that meet the standards of higher education.

The committees of CAP³ continue to prepare reports for the ASCE BOD as well as public dissemination. Questions or suggestion, please contact Jeffrey S. Russell at russell@engr.wisc.edu, Stuart G. Welsh at stuwalesh@comcast.net, or Thomas A Lenox at tlenox@asce.org.