Preliminary Results of a Search for Assessment Materials Addressing EC 2000 Program Outcomes from Secondary and First-hand Sources

Session Goals and/or ABET Criterion (Criteria) Addressed
The objectives of this session are to share preliminary findings about materials available, and materials in current use, for assessing each ABET a-k competency, and to share information about the Foundation Coalition Discovery Project which is in progress through Summer 2003. Additional objectives are to invite institutions, department heads, faculty and assessment personnel to participate as respondents in the first-hand data collection, and to obtain feedback on the project.

Presentation Format
The session will be presented as a lecture with questions and answers, followed by prompted discussion and opportunity to visit the FC Discovery Project’s data collection/query website to view forms, submit data and query databases.

Session Summary
The engineering accrediting body (ABET) has identified the skills and competencies (EC 2000 3 a-k) in which engineering programs are expected to prepare their students. In turn, engineering programs are expected to be able to ascertain and confirm that their students demonstrate these competencies. As a result there is currently a high demand for practical, targeted, processes, and tools to assess students and to assist programs to confidently ascertain and confirm student learning and competence.

Demand is particularly high for tools and processes to help in the challenging tasks of assessing competencies characterized as “soft,” such as communication, and teaming. Assessment materials are also sought-after for competencies which are additionally characterized as complex and open-ended, such as problem solving or design; as well as for those which are considered to be largely invisible in the classroom, such as professional and ethical responsibility and knowledge of contemporary issues; and for competencies which may be described in all of the above terms, such as lifelong learning. Yet, typically, the traditional sources of engineering assessment tools and models (i.e., test suggestions from engineering texts, and examination problems borrowed and adapted from other faculty) offer relatively little to help engineering faculty assess student learning and competence in “soft”, complex and open-ended, and invisible areas. Nevertheless, since assessment of all competencies is necessary, it is not unreasonable to assume that there are locally adapted or locally developed assessment materials in use at accredited programs throughout the country, which have not been made known to others outside the programs where they are being used. Believing this assumption to be valid, and responding to the gap between demand and general availability of materials to assess each of the ABET a-k competencies, a group of engineering educators and assessment and evaluation professionals from four Foundation Coalition universities, formed a team, in Fall 2002, and undertook an ambitious “Discovery” project to search for, collect,
organize and analyze a very comprehensive set of assessment materials addressing each of ABET’s a-k competencies both from first-hand and from secondary sources.

1. The first step of the project included formulating the standard methods (a) For conducting systematic web searches and print-literature searches; (b) for conducting preliminary (e.g., coarse) and fine-screenings of search products to eliminate whose which were irrelevant or invalid; (c) For examining and recording information about valid search products; (d) for selecting the first-hand data collection sample of institutions with accredited engineering programs; and (e) For surveying the sample of deans, department heads and faculty.

2. Second, over the course of about three months, team members (a) Conducted web and print-literature searches for assessment materials targeted to each a-k competency, and (b) Concurrently coarse-screened for irrelevant and invalid search products; (c) examined, and fine-screened products; and (d) recorded data about assessment material found in the searches.

3. Third, the team constructed (a) web-based survey data collection forms; (b) web-linked databases; (c) database query programs, and (d) query form web pages, and also (e) contacted sampled institutions to begin first hand data collection.

4. Fourth, data gathered from web and print-literature searches were (a) combined and (b) loaded into web-linked databases and (c) linked to database query forms on the web, and (d) the first hand survey data collection was managed;

5. Fifth, all data collected by the Discovery Project was (a) periodically summarized and analyzed; (b) By the start of spring semester 2003 approximately 40% of the discovery work had been completed; (c) Completion was expected by the start of fall semester 2003

In this session, the discussion of preliminary findings regarding the status of ABET competency assessment materials will be based upon data collected by March 2003 and will address (1) types of materials found and reported on ABET competency assessment; (2) the distribution of relevant assessment materials among the various ABET a-k categories; (3) the investigators’ characterizations of the assessment materials’ utility and quality; (4) the extent to which assessment materials could be readily extrapolated from articles and presentation papers addressing ABET assessment; and (5) the extent to which assessment materials could be readily accessed or acquired from first-hand survey results.

The broader goals, methods, tools and products of FC Discovery Project will also be reviewed. Those goals include the discovery, collection, and organization not only of assessment materials, but also of instructional materials addressing each of the EC 2000 competencies. Session participants will be invited to visit the Discovery data collection and query website and to contribute data about materials for ABET competency assessment and instruction. Participant feedback will be solicited on the Discovery Project.
**Key Words**

Assessment Materials; Competencies A-K; Soft Competencies; Materials Collection; Web Searches

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