



Chapter VII

Using Web-Enabled Technology in a Performance-Based Accreditation Environment

John C. Wise, Penn State University, USA

Dhaneshwar Lall, Penn State University, USA

Peter J. Shull, Penn State University, USA

Dhushy Sathianathan, Penn State University, USA

Sang Ha Lee, Penn State University, USA

Abstract

This chapter describes two online systems that support the transition from instructor-based to student-outcome-based education in an engineering technology context. The first system facilitates communication among faculty while establishing a baseline of current curricular practice. This data can be used to identify appropriate measurement points for various student performance outcomes. The second system is designed to collect and display student performance data related to particular educational outcomes in preparation for program accreditation. Data are collected

from both students and faculty. The system is scalable, so it can be adapted to various levels of need. This data are being used to assess individual or group performance across several distributed campuses.

Introduction

Recent changes in accreditation requirements for colleges of engineering have brought a need for performance-based assessment of student outcomes. This chapter describes two online systems designed to maximize stakeholder (in this case, higher education faculty) participation in the change process and design of assessments. The first system collects outcome-based data from faculty on a course-by-course basis in order to establish baseline data for a particular program. A second system is used to continuously track the performance of students and course effectiveness vis-à-vis the program outcomes and objectives. Readers will become familiar with a systemic application of online data collection linking 12 outlying campuses for analysis of student preparation and performance in common programs across the campuses. Although the technology presented herein is not new, its application as a tool to facilitate understanding of the systemic nature of the engineering technology curriculum is novel.

The objectives of this chapter are (a) to introduce the reader to two complementary online evaluation and assessment systems designed for both collecting data and enhancing collaboration among faculty in a higher education setting and (b) to report on the authors' experiences in implementing and using these performance-based assessment systems.

Background

Definition of Terms

- **ABET Criteria:** The accreditation board for engineering and technology (ABET) establishes standards for college programs desiring accreditation. The latest criteria emphasize specifying objective program outcomes and an assessment process that measures student performance against these outcomes and provides feedback for improving the educational program.
- **Program Educational Objectives:** Statements that describe the expected accomplishments of graduates during the first few years after graduation.
- **Program Outcomes:** Statements that describe what students are expected to *know* and be able to *do* by the time of graduation, the attainment of which indicates that the student is equipped to achieve the program educational objectives. (ABET-designated outcomes must be included.)

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