

Developing and Assessing Statewide Competencies for Engineering Design

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Abstract

An assessment system developed and piloted in Washington state to evaluate the engineering design competence of community college transfer students and continuing students at Washington State University (WSU) and the University of Washington (UW). A multiple measured approach was employed consisting of multiple-choice assessment, a team design performance assessment, and an essay, each administered to junior level students at WSU and UW. These assessments covered important design and design-related outcomes valued by the engineering community in Washington and expected of junior level engineering students. Scoring criteria were developed by engineering faculty for the team design and essay components. The assessment results provide faculty and other decision makers at community colleges and four-year institutions with data they need to determine the extent to which students are meeting design competency expectations. Moreover, the approach described in this paper illustrates how institutions can productively address the ABET Engineering Criteria 2000 requirements by developing the assessment support that engineering educators need to make informed programmatic decisions and achieve continuous quality improvement.

Full Text Reference

Trevisan, M.S., D.C. Davis, R.W. Crain, D.E. Calkins, and K.L. Gentili. 1998.

“Developing and Assessing Statewide Competencies for Engineering Design,” *Journal of Engineering Education*, vol. 87, no. 2, pp. 185-193.