Preliminary Results from a "Course-less" Curriculum Study

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ABSTRACT

In 2002, we received an NSF planning grant that builds upon our Sooner City project, which was funded through the Action Agenda program (NSF EEC 9872505). Briefly, Sooner City is a comprehensive, integrated, infrastructure design project that is threaded throughout the OU civil engineering curriculum, beginning in the freshman year. Freshmen are given a plat of undeveloped land that, by the time they graduate, is turned into a blueprint for Sooner City's infrastructure. Among other things, the project promotes five outcomes not always addressed by traditional curricula, but which are emphasized by the NSF Engineering Coalitions and ABET 2000: team building, communication, leadership, design, and higher level learning skills. For practical purposes, the original Sooner City project was implemented in the context of the traditional "course-dictated" curriculum. While this strategy promotes faculty buy-in and minimizes institutional cost, we believe that the above outcomes may be more fully realized if the curriculum were more flexible, viz, provide basic engineering science skills and tools to the students on an as-needed basis to complete the project. Thus, the objective of the planning grant is to pilot a project-driven, "course-less" curriculum. In this setting, "course-less" does not mean to "no courses." Rather, there would be "less" of them, because traditional courses that teach basic concepts would be replaced with self-paced IT modules. The pilot study consists of four phases: 1) develop electronic modules to deliver content from fluid mechanics on a just-in-time basis; 2) beta-test the modules with students who have not had fluid mechanics; 3) develop Sooner City design projects that integrate these modules in a just-in-time fashion; 4) assessment of the efficacy of the methods. Herein, we report on progress to date. Outcomes from the project will provide the needed insight to direct future steps toward a more robust "course-less" educational experience.