CLIENT-BASED DESIGN (ENVIRONMENTAL ASSESSMENT) COMPETITION AND INSTRUCTION IN ENVIRONMENTAL ENGINEERING

Dena W. McMartin¹ and Lisa M. Watson²

¹Faculty of Engineering and Applied Science
University of Regina, 3737 Wascana Parkway, Regina, SK, Canada

²Faculty of Business Administration
University of Regina, 3737 Wascana Parkway, Regina, SK, Canada

Abstract – An engineering business method of instruction around client-based projects is employed in a senior undergraduate environmental impact and design course. This instructional method provides students with experiential learning opportunities that connect them with local clients and prospective employers, engages them in applied project management activities and professional development, and endows a sense of pride in applied engineering approaches to problem solving.

In week 1, students are introduced to the design competition concept and given a project overview. They are also randomly assigned to teams of 4 or 5 students in order to begin strategizing prior to the client's project proposal presentation in week 2. The project package includes submission related and process management related resources. Students are provided documentation outlining the client's requirements, restrictions, and deliverables. They also receive templates for taking meeting minutes and recording task assignments, recording individual commitments and involvement via timecards that include assessments of not only time but also effort, and providing in-group peer review in a supportive and critical format. Instructional material throughout the course builds upon concepts and theories, as well as practical applications, required by students to adequately manage and competently complete the client's project requirements.

A critical learning component involves evaluation of draft reports, employing double-blind peer review. Every student is assigned a de-identified draft report to evaluate and on which to provide critical feedback. Using that feedback, each group submits an edited final report and formally presents it to the client and invited guests. At the completion of the project, the client is provided with a single report that compiles the optimal solutions from each group's analysis.

In the inaugural implementation of the design competition, a single municipal client was identified. Future years will include multiple clients and a bidding process to model consulting engineering practice.