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Introducing Principles of Land Surveying by Assigning a Practical Project

Authors : Introducing Principles of Land Surveying by Assigning a Practical Project

Abstract : A practical project is used in an engineering surveying course to expose sophomore and junior civil engineering students to several important issues related to the use of basic principles of land surveying. The project, which is the design of a two-lane rural highway to connect between two arbitrary points, requires students to draw the profile of the proposed highway along with the existing ground level. Areas of all cross-sections are then computed to enable quantity computations between them. Lastly, Mass-Haul Diagram is drawn with all important parts and features shown on it for clarity. At the beginning, students faced challenges getting started on the project. They had to spend time and effort thinking of the best way to proceed and how the work would flow. It was even more challenging when they had to visualize images of cut, fill and mixed cross sections in three dimensions before they can draw them to complete the necessary computations. These difficulties were then somewhat overcome with the help of the instructor and thorough discussions among team members and/or between different teams. The method of assessment used in this study was a well-prepared-end-of-semester questionnaire distributed to students after the completion of the project and the final exam. The survey contained a wide spectrum of questions from students' learning experience when this course development was implemented to students' satisfaction of the class instructions provided to them and the instructor's competency in presenting the material and helping with the project. It also covered the adequacy of the project to show a sample of a real-life civil engineering application and if there is any excitement added by implementing this idea. At the end of the questionnaire, students had the chance to provide their constructive comments and suggestions for future improvements of the land surveying course. Outcomes will be presented graphically and in a tabular format. Graphs provide visual explanation of the results and tables, on the other hand, summarize numerical values for each student along with some descriptive statistics, such as the mean, standard deviation, and coefficient of variation for each student and each question as well. In addition to gaining experience in teamwork, communications, and customer relations, students felt the benefit of assigning such a project. They noticed the beauty of the practical side of civil engineering work and how theories are utilized in real-life engineering applications. It was even recommended by students that such a project be exercised every time this course is offered so future students can have the same learning opportunity they had.

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