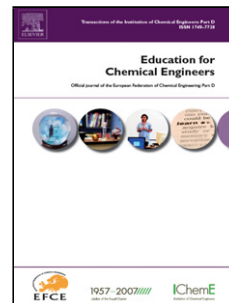


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Student Perceptions and Instructor Experiences in Implementing an Online Homework System in a Large Second-Year Engineering Course

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Highlights

- Commercial and in-house online homework systems are implemented in an undergraduate course
- Best practices and experiences are shared
- A survey of students is used to gauge student perceptions
- A balance of online and hand-written problems is effective for supporting learning

Abstract

In a large course, grading assignments is a time-consuming process requiring considerable resources. Online homework software systems are therefore increasingly being utilized. In this article, we will detail our experiences implementing online homework assignments in our course CH E 243: Engineering Thermodynamics; a large, multi-section course with more than 600 students/year in 4 sections. In Year 1 we employed commercial software, and in Year 2 we developed our own online assignments. In both years, assignments had both online and written components. After each year we conducted a survey of the students to gauge their perception regarding the implementation and benefits of the online and written assignments, and the contribution of these tools to the students' ability to master the material. We found that most students were satisfied with the online system, and recommended using it again the following year. Students generally perceived written assignments to be more helpful in achieving mastery of the course material than the online ones. Students perceived our in-house developed system much more positively than the commercial software (as did we). Overall, we perceived that the class performance was better when our own online assignments were used, and the number of students who failed the course was reduced.

Keywords: online learning tools, engineering education, web-based homework, pen-and-paper homework, second year engineering students

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