

Try This At Home – Flipping the Classroom in Chemical Engineering

נסו את זה בבית - "כיתה הפוכה" בפקולטה להנדסה כימית

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This presentation describes the first offering of a flipped version of the capstone design course taken by all the 4th Year Chemical Engineering undergraduate students (taken by 87 students this year). **This course was the first 100% flipped class ever given at the Technion.** The restructured course features three main components: (a) On-line lessons, taking students up to three hours to cover at home in their own time, and in advance of the class-session, each comprising of a sequence of short video clips (up to 15 minutes per clip, with most being a lot shorter) and an associated quiz question – Each lesson consists of between 6 and 12 such segments; (b) A two-hour class-session in which portions of that week's on-line lessons which were found to have been difficult for most of the students were explained in more detail, but mostly allowing for in-class activities (i.e. clicker questions and collaborative open-ended problem solving); (c) A three-hour active tutorial session, in which groups of students solve classwork (previously called homework). The students were graded on their performance on an exam featuring open-ended problems (counting for 60% of the course credit), as well as on the basis of two course projects, completed in groups of five students (together making up the remainder of the course grade). This presentation will provide an overview to the flipped classroom approach, providing details of this specific implementation, reporting outcomes and impressions.

Classroom experience with the flipped-class approach indicates that overall, students came to class and to the tutorials far better prepared than with the conventional version of the course. Furthermore, the performance of the students in the final exam was significantly improved using the flipped-class approach. Indeed, for the first time in about 15 years of teaching this course, all the students who took the course passed. This is definitely something worth trying at home!