

# Improving Interactive Strategies in Instructing Engineering Classes ASEE GSW Annual Conference Paper

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## Abstract

The scope of composing this document is to improve the teaching skills of Engineering-major instructors. Nowadays, engineering majors are one of the top majors in college. Students applied with the expectations to learn more about the mechanism of mechanical systems, building complex models and constructions, or designing plans to improve products that provide optimal efficiency to the industry's growth. The ones who deliver these ideas to students will be called engineering-major (EM) instructors. These EM instructors, teachers, or professors are hired to work by using their specialties and experiences in explaining and building the fundamental concepts of engineering works in students' minds. In doing so, EM instructors need to have effective strategies and talents in teaching and transferring complex ideas from their brains into students' brains. The process sounds relatively simple but is difficult because the knowledge of the engineering world can be challenging for some students. Hence, to be a teacher, especially an EM instructor, requires excellent skills and high responsibility for the job.

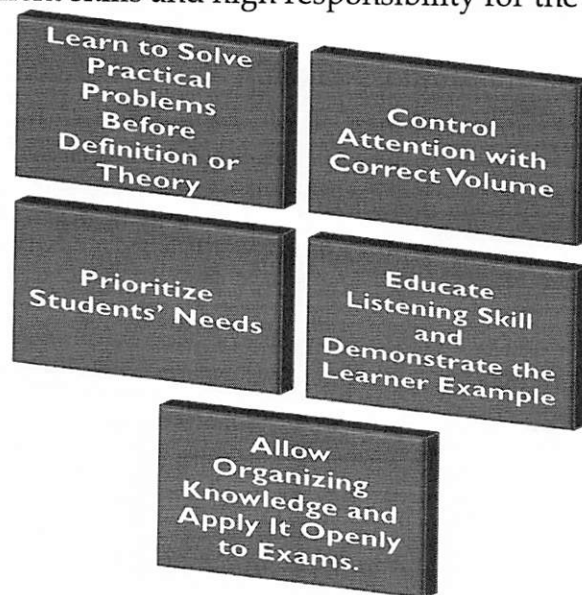


Figure 1. Methods to Improve Outdated Interactive Teaching Techniques

Many people, who work in education, claim to be the most excellent teachers with many outstanding teaching methods [1]. They understand that without plans and strategies, it could cause confusion and miss understanding, then lead to students' uninterest and quitting. Engineering teaching career is the same way. Some EM instructors

develop many teaching strategies to help students understand the problems, find the path to approach the situation, and demonstrate the solution or evaluation for the problem. However, so many students still do not understand the materials and do not receive any productive insights from EM instructors or engineering schools. The reason for this could be applying out-of-date teaching techniques that no longer fit the new generations. Thus, EM instructors must explore and fix the problem by updating their teaching methods. This document will show the five ways of improving old-fashioned teaching methods: The first is to learn the practical issues before the theory; the second is to control students' attention with correct volume[4]; the third is to prioritize students' needs; the fourth is to educate students not only about the knowledge, but also listening and understanding[5], show them an example of a successful learner [6]; and the last is asking students to organize their knowledge correctly, and allow them to use it openly during the exams. These new techniques have been researched and applied to two engineering courses at the University of North Texas, Denton, starting in the Fall of 2021. One is ENGR 1304-Engineering Graphics, and the other is ENGR 3450-Engineering Materials. Both classes show promising and better results than previous semesters. These positive results are based on the review and feedback from students. They profoundly feel the effect of the new systems and want to dive deeper into the subject with their instructor. These improvements will not only help to enhance engineering schools but also apply to any field of education. Hence, it is beneficial for EM instructors and all teachers to practice these methods. Once the techniques are used correctly, they will help to control and guarantee students' attention, ambition, and success.

## References

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