

Statement of Teaching Philosophy

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"Give a man a fish, and he eats for a day. Teach him how to fish, and he eats for a lifetime." --an ancient Chinese proverb

I had not paid much attention to this proverb until I became a senior student in college, and realized that in the world of science and engineering, there were infinitely many problems to learn, and of course, it was impossible for me to study all of those which were related to my field. During my first electromagnetics course in college, the course teaching assistant once told me that instead of searching for and solving all kinds of sample problems, I needed to focus on the process of problem solving in electromagnetics, and gain the ability to solve any problem whenever I needed to do so. His idea became my pattern of learning during graduate school. Therefore, as a teacher, rather than giving my students the solution to their problems all the time, I strive to teach them how to search for and construct complete answers. I would like to make my students capable of analyzing and evaluating on their own. This will guide them toward becoming independent thinkers and lifetime self-instructors.

Learning electromagnetics entails physical intuition, which can be gained through practice and experience. Also, as in most areas in electrical engineering, solid knowledge of basic applied mathematics is inevitable, especially in graduate level. Mathematics broadens students' insight into engineering problems. I want my students to use their intuition along with mathematics to analyze and evaluate problems. To help them gain enough intuition, I will solve selected sample problems in class, and will present alternative approaches to get the students to look at each problem from different perspectives. However, I never like to go into unnecessary theoretical details, as unnecessary details overshadow the concept.

Teaching *EECS 330: Electromagnetics II*, made me realize that undergraduate students get bored with theory and like to see more practical examples. This fact was verified when I asked my Graduate Student Mentor to conduct an in-class survey. To overcome this problem, I will use different strategies. First, I will keep the presentation of theory as short as possible, and will spend more time on examples. Second, I will get benefit from graphs and demonstrations. Third, I will get my students involved in discussions by asking them interesting questions on the subject, or by having them face challenging concepts and sometimes paradoxes. Finally, since engineering classes are usually diverse with students from different regions, especially Middle East and Asia, where undergraduate institutions usually emphasize a lot on theory, I will exploit this fact along with the diversity of my class to form multiethnic groups on an ad-hoc basis in order to promote teamwork which helps students view different problems from different perspectives.

I believe that the best way of evaluating students, especially graduate students, is assigning homework problems with reasonable required work throughout the semester. However, depending on the departmental policy, course, or class climate, I may get benefit from different types of exam such as short-answer, problem-solving, take-home, or oral. I would like to add that as teachers evaluate students, students have a lot to say about their teachers' performance. I have always welcomed feedback from my students and other colleagues. While departments usually require their students to fill out feedback forms at the end of each semester, I will conduct early teacher evaluation in my classes to assure my students that I care about what they want from their teacher, and to improve my teaching skills and methods.