

## **Teaching Statement**

Dear Esteemed Colleagues,

This letter is to inform you of my background in teaching and education, and to tell you about my teaching philosophy in an educational context.

### **1) Teaching Background**

As stated in my CV, I have a PhD degree in Electrical Engineering from University of South Carolina (June 2013 to December 2016), in which I had to act as a Graduate Teaching Assistant between August 2013 to May 2015 (4 semesters). In my assignment I assisted students in the introductory course on electronics, ELCT 363; and the course on renewable energy technologies, ELCT 510. My duties included proctoring and grading exams, tutoring undergraduate students during office hours, and acting as a substitute lecturer in place of the course professor when required. During this time, I served about 40 students per semester.

In my undergraduate years (BSc. in Electrical Engineering at University of South Carolina, August 2009 to May 2013) I was elected to the “Student Advisory Board” for the Department of Electrical Engineering to represent the student body (Class of 2013) in the board, which is comprised of undergraduate students and faculty members. As the student member, I made recommendations to improve the objectives and outcomes of the BSc. in Electrical Engineering degree: coursework, student projects, involvement, general success rate. The objectives and outcomes of the undergraduate curriculum are also reported to the Accreditation Board for Engineering and Technology (ABET, USA) and play a significant role in the development of the educational program. Through these recommendations, there has been significant improvements in the quality of the student experience (increased first-year retention, recruitment of honors students, focus on career services, etc.).

### **2) Classroom Teaching and Educational Philosophy**

As you know, the most important factor in undergraduate education of future science, technology, engineering, mathematics (STEM) graduates is the naturally challenging aspects of the coursework and assignments, which are tuned to adapt and train the students to the work they will be doing as professionals. As much as the challenging aspects of the education test the students’ skills, patience and resilience as a determinant of future success, it is also a factor in the retention rate in undergraduate STEM programs. As educators, lecturers and professors, we always try to strike a balance between the demands of the undergraduate program, against the willpower and potential of success of the students.

In classroom teaching, I will prepare and present slides for every lecture, which will be made available to the students online. I will assign a course textbook, and for every other lecture (usually once a week), I will assign a problem set/homework which will be made appropriately to the in-course subjects. The homework and the exam questions will be mirrored in-class (with different numerical values and with creative problems) to prepare and test their learning. Usually, for every four to five weeks (for every month of the semester – three times) there will be a written exam, which may include numerical questions and multiple-choice questions.

As for the teaching philosophy, I believe the students should find the subjects informative and interactive, which will encourage active learning. I am a strong believer in asking questions to the students and solving numerical problems during lectures. These questions will demonstrate to the

student about the deduction and logic in the creative process of being a “STEM” practitioner. Sometimes, as the lecturer I will construct my presentation or numerical analysis by asking these questions out loud and answering them as I present the technical challenges and solutions. Ideally, this will spark the interest and imagination of the students.

Other important things during a lecture to spark the imagination and professional interest of the students could be anecdotes and personally relatable stories from my own professional life as an example, and to ask ethical questions relating to the subject (such as in design and applications for STEM work). Finally, I think that physical examples that the students can see (and touch) could be very useful. For example, in a microelectronics class, if we are talking about computer chips it may be a good idea to bring a silicon wafer to the class; if the subject is solar cells we can bring a sample wired to an electric fan, which will turn on as we shine light - this can be a simple but effective demonstration to increase student class involvement for an introduction to the subject.

### **3) Examinations and Assignments**

About exams and homework assignments: I strongly believe that the coursework taken should prepare the student very well for the upcoming coursework next semester, for the experimental/lab work, and for professional life. Although I don't aim to set the difficulty of the exams and homework to fall into a “bell-curve,” I do think that the difficulty of the problems should be naturally challenging enough to encourage interest in learning the subjects in the students, but not to discourage them through extraordinary failure rates. As long as the students meet the objectives of the class and have the required outcomes, I would be very thrilled to see my students successful.

Finally, since STEM education and profession has the aspects of a lifestyle commitment in practice, I believe the students can be encouraged by curricular and extra-curricular projects. These projects will aim for the students to read and research information on their own, to practice their creative design and problem-solving skills, to improve their class cohesion and their teamwork communication behaviors. Lastly, as their educator, I will also inspire and mentor students during office hours, and I will encourage professional clubs and activities (such as the European Physical Society, IEEE, SPIE) as their faculty advisor.

To summarize, I am very happy and excited to teach undergraduate and graduate students as a part of my job. I believe teaching is one of the most important aspects within the academic life, and I firmly believe that professors and educators who can inspire and graduate successful students are greatly successful.

Sincerely,  
Rahmi Orhon Pak, PhD