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STATEMENT OF TEACHING PHILOSOPHY

I take great pride in educating and counseling my students, both on a personal and a professional basis. That's why I became an engineering educator. As an undergraduate student, I was excited when I learned an engineering principle or solved a problem and could help others to understand the same. As an engineering professor, I still enjoy this.

My mother inspired me to become an engineer. Had it not been for her persuasion, I would have majored in music and foreign languages. She convinced me that I had the aptitude to become an engineer, and I am immensely happy that I listened to her. My interest in becoming an engineering educator came during my sophomore year. I was taking Statics and often found myself hosting study sessions, teaching other students how to solve problems. In fact, I even convinced our instructor to allow me to teach the class one day to review an exam and answer my classmates' questions.

I believe that peer teaching is a great way to foster student learning. In my Introduction to Civil Engineering course, I require students to team teach their peers about an assigned civil engineering subdiscipline (e.g. structural, geotechnical or environmental engineering). I take notes along with the rest of the class and develop a quiz based on those notes. At the end of the presentations, each student must field questions from their peers and me. I use that opportunity to clarify any confusing information and to emphasize the portions that I deem are most important. I administer a scholarship program called FORCES (Focus On Retention in Cohorts of Engineering Students), and I require those students to participate in weekly group study sessions in which a team teaching approach is strongly encouraged. I have explained to them the benefits for not only the student who is receiving instruction, but also for the student providing instruction.

In presenting material and teaching concepts, I understand that individuals learn differently, and I incorporate various techniques into my lectures. I lead classroom discussions and get input from students with different perspectives in order to generate further discussion. I question students frequently – by name – which I believe encourages them to come to class prepared and to pay attention throughout. When a student is unable to respond, I don't let him/her off the hook; I guide them through a thought process that usually leads to the right answer. In extremely difficult cases, I sometimes allow them to "phone a friend", at which time they can select one of their classmates to answer the question. I enjoy assigning group-based projects because they teach so many meaningful skills beyond the engineering subject matter – teamwork, conflict resolution and technical communication (oral and written) skills are all honed through these assignments. In classes that require a great deal of problem solving, I deal with things relatively systematically: (1) identify what's given, (2) identify the equations and/or concepts that are applicable to the problem, (3) obtain (from calculations, tables, etc.) any other required information, (4) solve the problem and (5) analyze the results.

I've been an engineering professor for over 15 years now, and I still believe that the greatest skills that I acquired from my undergraduate degree were how to think and how to learn. When I completed my undergraduate degree, I felt as if I could achieve anything! I have always strived to instill the same in my students. They will have to continue learning in any position that they take, and success in their undergraduate degree program demonstrates to prospective employers that they can learn, and hopefully, think critically. I discourage memorization (except for certain quantities, fundamental relationships and concepts that must be memorized), and encourage learning principles. If students learn the principles behind the engineering, science and mathematics concepts, they can apply those principles in a variety of settings, including in subsequent courses and in professional practice. I try to ask questions and present problems in a way that will challenge their thinking. I explain that in engineering practice, problems will not always come with the same "givens". Sometimes we have to figure out the "givens" before we can solve the problem. Then, we have to evaluate our solution to ensure that it makes sense. Does it answer the question that was posed? Are the units correct?

Another very important value that I stress is ethics. This applies in the classroom, life in general and in professional practice. I explain to my freshman students that the old adage, "What you don't know can't hurt you" doesn't apply to civil engineers. The truth is "What you don't know could kill someone." I use that as a springboard to discuss academic dishonesty and professional and ethical responsibilities of engineers. I usually follow this with mini case studies from the American Society of Civil Engineers (ASCE) or the National Society of Professional Engineers (NSPE) and open the floor for students to discuss and/or debate the issues in the context of engineering codes of ethics. I believe this helps them to identify potentially "sticky" situations that they should seek to avoid as professionals.

I love my profession and I love my students. I endeavor to involve them in activities that develop them wholly by encouraging them to pursue goals beyond academic achievement such as professional development and service. I encourage character development and warn them of the dangers of accepting employment opportunities strictly on the basis of salary. Nothing beats loving what you do every day and getting paid for it; and no amount of money can buy happiness and peace of mind when you're stuck in a job that you hate. Above all else, I strive to teach by setting a good example.