

# Teaching Philosophy

Martin W. Trethewey

I believe students are best prepared to become effective professionals by immediately applying new-found knowledge in a practical and real world context. My education philosophy focuses on developing and delivering real-life activities inside and outside of the classroom, in order to facilitate the transition from student to practicing professional engineer. I employ a “learn by doing” approach, allowing students to simultaneously develop and practice their understanding. I endeavor to create practice based valued added learning opportunities which can be integrated into a somewhat constrained and prescriptive engineering curriculum. I try to lead the students, and in some circumstances faculty, by example into taking advantage of new learning opportunities. The combination of creating an engaging classroom through real-life experience, I find to be powerful and productive.

Students in Mechanical Engineering enter the program in their third year. Thus this demographic consists of students preparing to transition to the professional workforce or advanced studies. My classroom approach is to frame assignments and activities to mimic what the students will encounter in their careers. Students are asked to work in teams to simulate a small professional consulting company. This “company approach” allow the students to simultaneously practice professional skills, such as teamwork and communication, as well as immediately apply newly studied technical topics. The framework provides a mechanism to deliver the technical engineering material in a manner that provides a valuable practical component. The students relate well to the approach as they can recognize the practical value of the theoretical material.

At this later stage of my Penn State career, I have taken my value added educational experiences philosophy to try and reach to students and faculty, outside my immediate purview. One such example is the Global Capstone Project Team activity which endeavors to better prepare Millennial engineering students to succeed in the increasingly interconnected globally economy. Through this course, international teams are formed of students from Penn State and an overseas university. The students report to an industry sponsor and are asked to mimic the operation of a multi-national corporate engineering team. The global team project delivers in-depth international experience while operating within the constraints of a prescriptive engineering capstone course. The development of the Global Capstone course has provided me the opportunity to influence other programs at Penn State by showing colleagues how to structure and deliver such a course. The impact of this program has also been felt by students and faculty at the partner institutions in Korea and China. I believe the Global Capstone activity epitomizes the educational philosophy I have practiced throughout my career.

I am passionate about helping our engineering students launch productive and personally fulfilling professional careers. While working within the structured engineering educational framework, I have endeavored to provide exciting opportunities beyond the traditional classroom so that students can reach their full potential.