

Experience Teaching a Two Course Sequence in Engineering Innovation & Leadership

Dr. Peter Golding, University of Texas at El Paso

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Mr. Mike Thomas Pitcher, University of Texas at El Paso

Mike Pitcher is the Director of Academic Technologies at the University of Texas at El Paso. He has had experience in learning in both a traditional university program as well as the new online learning model, which he utilizes in his current position consulting with faculty about the design of new learning experiences. His experience in technology and teaching started in 1993 as a student lab technician and has continued to expand and grow over the years, both technically as well as pedagogically. Currently he works in one of the most technically outstanding buildings in the region where he provides support to students, faculty, and staff in implementing technology inside and outside the classroom, researching new engineering education strategies as well as the technologies to support the 21st century classroom (online and face to face). He also has assisted both the campus as well as the local community in developing technology programs that highlight student skills development in ways that engage and attract individuals towards STEAM and STEM fields by showcasing how those skills impact the current project in real-world ways that people can understand and be involved in. As part of a university that is focused on supporting the 21st century student demographic he continues to innovate and research on how we can design new methods of learning to educate both our students and communities on how STEM and STEAM make up a large part of that vision and our future.

Dr. Cole Hatfield Joslyn, University of Texas at El Paso

Cole Joslyn is an Assistant Professor of Practice in the Department of Engineering Education and Leadership at The University of Texas at El Paso. His research emphasizes humanizing engineering education, particularly 1) increasing Latinx students' sense of belonging in engineering by a) integrating holistic, socio-culturally responsive practices and Latinx cultural assets and values into educational success strategies, and b) understanding how Latinx students experience values conflicts and exploring how to help them reconcile those conflicts; 3) promoting student growth/development in multiple dimensions; and 4) reconciling the social and technical nature of engineering.

Ms. Anneliese Mari Fensch, University of Texas at El Paso

Anneliese Fensch is a student at her university's Engineering Innovation and Leadership program. In the program, she is employed as a teaching assistant for introductory classes. As well, she serves as a research assistant for the program, developing curriculum and methods to instruct engineering classes. She has a concentration in mechanical engineering and is pursuing a minor in Political Science - Public Administration. She hopes to apply her education to pursue a career in renewable energy engineering and research. Outside of classes and work, Anneliese is the vice president of the university's Green Team, an organization focusing on sustainable development at the university, and the external relations chair of the university's Society of Women Engineers chapter. She enjoys writing and spending time with her family and pets.

ABSTRACT

This paper details the establishment of effective team teaching for the first year of an ABET-accredited Engineering Innovation and Leadership degree program. The teaching team successfully taught to courses: EL 1405 Fundamentals of Engineering and Graphics and EL 1302 Introduction to Design and Leadership, using a variety of online platforms and sources.

EL 1405 equips students with fundamental skills to help thrive during pursuit of their BS in Engineering Innovation and Leadership. Therefore, a major focus of the course is to help students their own identity as leaders and as engineers. Another focus of the course is to build community and culture within the Program. Further, this course introduces students to the flipped classroom and project-based learning styles common in EL courses. The final focus of this course is the development of critical engineering graphics skills for students

EL 1302 focuses on engineering design and engineering project management with emphases on the techniques and skills needed for leadership within this domain. Topics include innovation and creativity, continuous quality improvement, and sustainability. We describe the teaching team dynamic, the student-to-teaching team cooperation and the use of innovative technology tools to support student learning and success.

The teaching team is comprised of faculty, staff and students who work closely to provide a seamless learning experience for students. The students in the teaching team having taken the courses previously, demonstrate the value-added in their own professional development through leadership and management of course structures and schedules, as well as delivering content and overseeing course management systems.

The teaching team experience, working closely together during all phases of the classes, provides a demonstration of how course teaching is both an art, a science, and a research endeavor; and all grow joyfully from the experience. We will share our efforts and how they have impacted students, and how we use student feedback to develop the next iterations of these phenomenal experiences, in a continuous quality improvement process.