**CAPSULE PD**

**Course Philosophy:** The capstone vision utilized in this course is new, unique, and effective.This vision aims to provide teachers with capstone-based teaching pedagogy and tools. In turn, teachers provide their students with capstone-based learning. This unique approach utilizes open-ended problems and projects for classroom teaching. The main benefit of solving these problems and projects is to connect abstract STEM concepts to realty and real-life applications. Thus teachers will be able to more effectively deliver the concepts to students while students are becoming excited about STEM subjects and eventually about STEM careers.

**Course Description:** This two-week intensive course is aimed at high school teachers who teach STEM subjects including science (physics, chemistry, and biology), mathematics, engineering, and technology. The course immerses teachers in a capstone experience that is based on the engineering design process (EDP) to help them teach their students STEM subjects more effectively in the classroom. The effectiveness of the capstone approach stems from: (1) the open-ended nature of the capstone activities, and (2) helping teachers and students connect the abstract STEM concepts to real-world applications. Teachers learn and practice capstone concepts in Week 1 of the course, and apply the concepts to develop their own instructional plans in Week 2. Topics covered include capstone projects, capstone-based inquiry, relationship between design and manufacturing, product design, product analysis, design tools, hands-on projects, capstone clinics, and design and develop capstone-based classroom pedagogy.