The EPICS Program: Innovative Education for Authentic Learning

Mrs. Jean M. Trusedell, Purdue University

Jean Trusedell is a Nationally Board Certified Teacher with extensive experience working with K-12 Educators and students. Her current project is working with the EPICS (Engineering Projects in Community Service) at Purdue University to create curriculum that can be used with students throughout the country to integrate best classroom practices with engineering principles. Previously, she was the Science and Technology Coach for MSD of Decatur Township in Indianapolis, IN. Ms. Trusedell is pursuing a PhD in Curriculum and Instruction with an interest in formative assessment and its relationship to student achievement.

Miss Mindy Hart, EPICS

EPICS Program: Innovative Education for Authentic Learning

Target Grade Level: High School

Author's Name and Contact Information
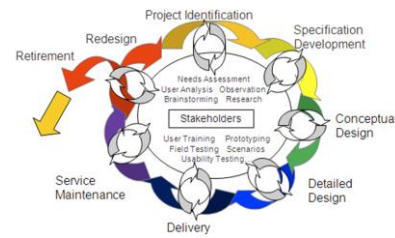
- **Mindy Hart,** Coordinator, EPICS High program; Neil Armstrong Hall of Engineering, 701 West Stadium Avenue, West Lafayette, IN 47907; Phone: 765-496-1889; Fax: 765-494-0052; Email: mindy@purdue.edu
- **William Oakes, PE,** Director, EPICS Program; Neil Armstrong Hall of Engineering, 701 West Stadium Avenue, West Lafayette, IN 47907; Phone: 765-494-3892; Fax: 765-494-0052; Email: oakes@purdue.edu
- **Jean Trusedell,** Education Curriculum Specialist, EPICS Program, Neil Armstrong Hall of Engineering, 701 West Stadium Avenue, West Lafayette, IN 47907; Phone: 765-496-1889; Fax: 765-494-3798; Email: jtrusede@purdue.edu

Curriculum Summary: Integrating engineering practices into service-learning is the focus of the EPICS Program The goal of EPICS High and its curriculum is to engage high school students in the fields of engineering and technology while meeting a critical educational need of providing hands-on engineering and technical design opportunities.

Key elements of the program include: teacher professional development; engineering mentors and support; and STEM and computer science content (EPICS Program students apply their knowledge to meet real needs). The EPICS Program has the potential to play a prominent role in addressing many current issues facing today's communities by providing not-for-profit organizations—such as community service agencies, schools, museums, and local government offices—the creation, implementation, and delivery of technology resources needed to improve services.

Session Goal- In this session the participants will be using scenarios as a way of empathizing with potential stakeholders, determining their needs and creating a prototype that would be used as a discussion tool to further determine the needs of the engineering design.

Essential Questions: What are scenarios and personas and how are they used to help my students understand a need within the community? How can we create a prototype that can be used as a dialogue starter with the stakeholder?

Content Overview- The participants will explore the use of scenarios and personas as a way of personalizing and empathize with stakeholders along with creating and using a prototype as a discussion tool with the potential clients.

Materials- Scenario cards, craft supplies

Workshop Procedures- Use of Scenario Cards to walkthrough the design process- This activity is design as a quick overview of the design process from project identification to prototyping and redesign.

The participants will select a scenario card that represents current projects in the EPICS Program.

The teachers will read through the cards, discuss the information, sketch out a possible solution to the given engineering problem and create a prototype.

They will then get feedback from other participants and sketch a redesign to the prototype.

The participants will then role play to get additional feedback to determine the best redesign possible for the prototype. After they have feedback information they will present their scenario and prototype solution to the team for feedback and review.

Reflection- Reflection is an essential part of the educational process not only with students but with instruction. The teachers will reflect using the following questions. How would this process help identify potential projects and the critical thinking associated with delivering a possible engineering solution in your community? How are the discussions that the prototype facilitates helpful for understanding more about the stakeholder and the situation?