

**Project Title:** ENpowered – Utilizing Engineering as a tool to empower student learning

**Type of Grant:** Early-Phase

**Absolute Priorities:** Absolute Priority 1 (Demonstrates a Rationale) and Absolute Priority 3 (Field Initiated Innovations – Promoting Science, Technology, Engineering, or Math (STEM) Education, With a Particular Focus on Computer Science

**Total number of students to be served in the project:** 600

**Grade levels to be served by this project:** 6<sup>th</sup> grade

**High needs students:** For this project’s STEM context, high needs students include Black (African-American) and Latino students, female students, students attending high-minority schools, and students living in poverty.

**Brief description of project activities:** ENpowered is a middle school enrichment program, which provides students with a project-based curriculum to increase their interest in and understanding of engineering. Over the course of 10-weeks, students receive 20 hours of rigorous instruction to develop their skills in engineering design thinking and core engineering disciplines such as: mechanical, electrical, civil or computer engineering. Our instructional team leads students through a series of lessons and design challenges to build their knowledge in core engineering subjects, while reinforcing their knowledge in specific science and math areas. Upon completion of the program, students from all of our participating schools take part in a competition to test their ability to work in teams and apply the knowledge gained.

**Summary of expected objectives and outcomes:**

- Increase student academic growth in STEM disciplines – with increased student performance in math and science on standardized tests (removing this period because it’s not on the other bullet points)
- Increase in STEM engagement
- Increase in self-efficacy in STEM
- Increase in STEM career awareness

**Special Project Features:** The ENpowered Program features a competition at the conclusion of the year called the “ENpowered Games”. The competition provides an opportunity for all of the program participants to showcase their engineering skills and knowledge as they compete against one another for 1<sup>st</sup> place. Teams of students, compete in a series of engineering challenges utilizing the skills they developed during the course of the program. The competition also provides an opportunity for parents, industry partners and other stakeholders to cheer on the students’ success.

**Organizations partnering with this project:** This project will take place in partnership with numerous public schools on the west and south sides of Chicago. It also incorporates partnerships with local engineering companies that provide volunteers to work with each school to offer real-world connections for students. Partnering companies include: Boeing, Motorola Solutions, Lenovo, ComEd, Microsoft, ArcelorMittal, Molex, ABB, PepsiCo, HBK Engineering and many more.

To evaluate the impact of ENpowered, Project SYNCERE will engage an external evaluator, The Policy & Research Group, to conduct a quasi-experimental research study to assess the impact of ENpowered on academic achievement (as measured by standardized math scores). Additionally, PRG will assess the impact of ENpowered on 1) science achievement among a subset of students and 2) STEM attitudinal outcomes.