

UTC Project Information -Education	
Project Title	STEM Teacher Professional Development – Transportation Series/Student Outreach and Education – Companion Proposals
University	Texas Tech University
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Total Project Cost	\$86,450
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Start and End Dates	June 1, 2014 – May 31, 2016
Brief Description of Research Project	<p>PROBLEM: The nation is battling a critical global competitiveness void due to the substantial lack of students pursuing STEM-related degrees. Additionally, few high school students are being prepared to enter the workforce and effectively contribute to the economy in STEM-related career fields. Addressing critical transportation workforce shortages and corresponding recruitment and retention issues requires exposing and educating students to industry opportunities as early as possible. Teachers are instrumental in creating an educational environment for exposing students to transportation and STEM-related academic and career treks.</p> <p>PROPOSED SOLUTION: Equipping K-12 educators through transportation-focused professional development programs is the first step in building a critical pipeline for augmenting the future transportation workforce. This project will focus on the development of continuing education workshops that will present educators with current and emerging transportation infrastructure issues. Topics include highway design, transportation systems, traffic safety, construction materials, climate event impact and the future of surface transportation. Texas Tech researchers from the Edward E. Whitacre Jr. College of Engineering, and a Texas certified</p>

	<p>teacher will serve as workshop instructors. The project effort will also focus on equipping educators with classroom implementation materials to inform and inspire students about STEM careers in the transportation industry. Development of grade-appropriate teaching modules and projects will be developed for classroom use, such as academically rigorous senior year Capstone research projects. Simple concepts that students learn in high school level physics, math and chemistry classes (e.g. frictional resistance, corrosion) will be used to construct project-based lessons (PBL) and activities that expose students to real-life scenarios. In addition, methodologies for integrating hands-on projects into lessons and developing rubrics to assess student learning and progress will be provided. Content will be developed by faculty and content master teachers and will cover state academic standards, Texas Essential Knowledge and Skills, 21st Century Skills, and College and Career Readiness skills. Lastly, the effort will yield student recruitment and outreach for 6th – 12th grade students enrolled in classes taught by teachers who participate in the Transportation Series workshops. The goals include sparking student interest, providing faculty-to-student discussion sessions, and solidifying student plans for college and career aspirations in the transportation industry.</p>
<p>Describe Implementation of Project Outcomes (or why not implemented) Place Any Photos Here</p>	
<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	
<p>Web Links</p> <ul style="list-style-type: none"> • Reports • Project website 	<p>http://www.depts.ttu.edu/tstem/workshops/transportation.php</p>