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2013 Science Fair Awards

TTU's College of Engineering awards scholarships at regional science and engineering fair

For almost 60 years, Tennessee Tech University has hosted the Cumberland Plateau's regional science and engineering fair. For students who have an interest and passion for the sciences, the fair has been a gateway to knowledge and potential career paths.

In 2013, Tennessee Tech's College of Engineering added three scholarship awards to recognize innovation in engineering research. Kurt Dunham of Cookeville High School won a \$1,500 scholarship; Kinsey Potter of Jackson County High School won a \$1,000 scholarship; and Matthew Foutch of DeKalb County High School won a \$500 scholarship.

"The regional science fair is a great springboard for future engineers and students interested in STEM curricula, giving TTU's College of Engineering a direct stake in the event," said Joseph Rencis, dean of the college. "As we work to prepare our children to compete in the increasingly technical global workforce, a sound footing in the science, technology, engineering and math fields is more vital than ever."

"It is clear that a background in STEM will open up better job opportunities to families in Tennessee," Rencis said. "These engineering awardees are taking on problems that are important to society and will make the world a better place to live. I commend all of the participants for their hard work and dedication."

Dunham's "Fantastic Corn Plastic" took on the effects of additive materials on the tensile strength of bioplastics made from cornstarch. The main drawback of corn-based plastic is that it tends to not be as strong as conventional petroleum-based plastic. Dunham's project involved changing proportions and adding ingredients to strengthen the plastic material.

"In an effort to end America's dependence on foreign oil, creating a plant-based bioplastic that possesses sufficient tensile strength remains one of the top challenges facing America's bioplastic researchers," said Dunham.

Potter's "Wind Power" project put ceramic magnets inside an old fan motor, repurposing the motor's armatures and stator to generate electricity. The amount of power generated could charge batteries for devices like emergency radios or heart defibrillators.

"Every idea starts with one step at a time," said Potter. "I think there could be an organization or charity in which people donate old fans, washers, dryers, air conditioners and other simple machines that contain motors. Volunteers could be trained in just a few hours to transform a used motor into an electrical power generator."

Foutch's "Solar Powered Water Desalination" involved containers of saltwater set against colored backgrounds. He documented the effect of the colored backgrounds as they deflect or absorb heat, affecting the rate at which desalination occurred. Foutch sees the project as a model for future water conservation initiatives, especially in developing countries.

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