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College of Engineering and Applied Sciences

Western Michigan University
College of Engineering and Applied Sciences
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WMU Engineers Help Shape the Future

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"The fewer moving parts, the better. Exactly. No truer words were ever spoken in the context of engineering."
~ Christian Cantrell

CEAS News

Innovative Projects at the 55th Conference on Senior Engineering Design

Senior engineering students at Western Michigan University unveiled imaginative and highly technical projects this month during the 55th Conference on Senior Engineering Design.

The students showcased and demonstrated their projects at the College of Engineering and Applied Sciences on WMU's Parkview Campus.

The event is always free and open to the public. Among the many innovative projects that were on display was a system to keep track of patients in a modern hospital called the "People Mover", a "Performance Feedback Punching Bag" which measures and records the force and frequency of punches to provide user performance feedback, and the "Handi-Bike" (pictured right) a wheel chair that provides the operator various means of mobility.

The conference is held twice each year, in April and December, to showcase the work of graduating seniors in the engineering disciplines, who are required to complete a real-world capstone project. For more information on all the projects at this conference visit Senior Engineering Design Conference.

The "Handi-Bike" project group includes Adam Jeffrey, Samuel McDaniel, Jacob Meyers, and Gregory Peterson.

Innovation Day Celebration at the College of Engineering and Applied Sciences

Nick Nordstrom, Ben Reed and Luke Swoboda created the prototype for the Easy Empty Garbage Container. Which was one of the many entrepreneurial projects displayed at the Innovation Day event.

Entrepreneurial students from across WMU, including students enrolled in Entrepreneurial Engineering II and Engineering Design courses, including those working through the Starting Gate business incubator and a group of K-12 students, participated in WMU's Innovation Day event. The students presented their prototypes and models for new products and businesses to the public. The public helps assess the students' products and provide valuable input. According to **Dr. Steven E. Butt**, professor and chair of the Department of Industrial and Entrepreneurial Engineering and Engineering Management, "The assessment involves listening to the student pitches and investing 'Innovation Dollars'" Dr. Butt says. "Those attending were given the 'I-Dollars' when they arrived and then invested those dollars in the products they believed were the most innovative.

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Foundry Educational Foundation's College in Industry Conference Scholarships

Pictured here is the entire group of Foundry Educational Foundation scholarship recipients from the College in Industry Conference. The conference was held in November. Students are selected to attend the conference based on their interest in the casting industry.

~ Picture courtesy of Foundry Educational Foundation

Western Michigan University is one of only 20 universities in the world to be certified with the Foundry Educational Foundation. Pictured left is the entire group including the two Western Michigan University students, who attended the College in Industry conference. WMU students **Michael Banion and Michael Konkel** received a DID Delegate scholarship at the event. Over 310 industry executives, student delegates, key professors and university administrators were in attendance at this year's FEF College Industry Conference, held recently in Chicago. Companies at the conference have a unique opportunity to meet the top engineering students in the country. There is a career information session that allows a company to interview or to acquaint future industry leaders with their products and services. Over $30,000 in special scholarships and grants are available to undergraduate and graduate students.

For the First Time in History, the National Institute of Health Funds CEAS Research Project

Dr. James Springstead

Dr. James Springstead from chemical engineering, was recently awarded $416,816 in funding from the National Institute of Health for his studies on determining underlying biological mechanisms that lead to heart disease. In the early stages of atherosclerosis, the underlying condition leading to heart attacks and strokes, oxidized LDL accumulates inside artery walls. Oxidized phospholipids are primary oxidized LDL components that initiate inflammation and eventual lesion formation in the arterial lining. Dr. Springstead's studies are focused on measuring the biological activity of these oxidized phospholipids and oxidized fatty acid degradation products in endothelial cells, which line arteries. The main goal of this work is to determine the mechanism by which these lipids affect inflammation and the progression of atherosclerosis. This project is strengthened by collaborations with Sangderk Lee of the Saha Cardiovascular Research Center of Kentucky, Mete Civelek of the UCLA Atherosclerosis Research Unit, Greg Cavey of the Southwest Michigan Innovation Center, and Walt Shaw of Avanti Polar Lipids.

After completing his Ph.D. in Chemical Engineering at UCLA, Dr. Springstead applied his love for lipid chemistry to determining important mechanisms involved in heart disease in the UCLA Atherosclerosis Research Unit. He is also scheduled to teach cardiology classes in WMed the new medical school, this coming summer where he has been appointed Assistant Adjunct Professor. It is a major goal of Dr. Springstead's to bring engineering and medical students together to solve important medical problems at WMU, and he is currently developing a chemical engineering class that focuses on important material in molecular biology, bioprocessing, and pharmacology. This class, planned to be offered in Fall 2016, will include material from biotechnology and bioprocessing sources, as well as pathology and pharmacology textbooks used by the medical school, and is designed to eventually catalyze interactions between engineering and medical students.

~James Springstead, contributor

Happy Holidays!

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