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College of Engineering and Applied Sciences

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Recently, Alexa Carey, engagement manager at Western Michigan University, submitted a charitable contribution request to Stryker Instruments for the WMU Sunseeker Solar Car team. In response, Amy McClain, community engagement and events manager at Stryker Instruments, reported they would be contributing a pallet of new K2 battery cells to the WMU solar car team, worth $46,500.

Dr. Bradley Bazuin professor and faculty advisor, reported that they normally have to purchase sufficient batteries for one battery per vehicle in a racing configuration with a minimal number of spares (420 required, 500 purchased). With the pallet of batteries consisting of 8500 total, they can build test and demonstration batteries for all current vehicles and another for the new Sunseeker 2016 in design and development. As racing batteries only maintain full operational specification for approximately 500 discharging and charging cycles, a spare battery allows them to test and demonstrate the car as many time as they desire without a concern about the racing status. The batteries are more stable and safer to use than the racing batteries previously purchased and they also allow for a complete test battery for electronic circuit cards and "battery protection system" testing to exist. The more complete the "Sunseeker" test-bench, the more circuit and embedded software testing and development, along with team member training they can do without having to work directly on the vehicle.

Bazuin stated that they also plan to develop a solar demonstration system for educational purposes, possibly related to the Consumer's Energy solar garden, involving solar panels and energy conversion components to charge a battery and provide 24-hour power for LED lightening and computer monitoring.
Additional plans are to use the batteries for the other tasks such as:

• Senior projects that require rechargeable battery power for operation or demonstration.
• Undergraduate laboratories involved in battery powered circuitry and battery evaluation and testing.
• Summer institutes hosted by WMU where power, energy, and batteries are used for various applications.

Overall, Bazuin stated that this was an enabling donation allowing a wide range of solar and energy storage projects for Sunseeker and numerous other projects in the College of Engineering and Applied Sciences.

WMU AND FUZHOU UNIVERSITY RELATION PROMOTES GLOBALIZATION AND INTERNATIONALIZATION EFFORT

In 2014, Dr. Attanayake, associate professor of the Department of Civil and Construction Engineering and a bridge engineering expert, was invited to the College of Civil Engineering at Fuzhou University in Fujian Province, China. The primary objective of the first meeting was to work with the researchers at the Sustainable and Innovative Bridge Engineering Center (SIBERC) to promote jointless bridges in China. However, after the first meeting, Dr. Attanayake was successful in bringing together Fuzhou University administration and the Haenicke Institute for Global Education to sign a broader agreement for developing collaborative research, faculty exchange, and student/scholar exchange programs to promote the efforts towards globalization and internationalization of the academic environment of both institutes.

Further strengthening the relationship between the two institutes, in June 2015, Dr. Attanayake took part in a two-day workshop conducted at the Fuzhou University. In addition to the local participants (bridge engineers, faculty, and graduate students), about 30 bridge engineers
representing several South American countries attended the workshop. The workshop ended with a site visit to review the performance of jointless bridges in China. “Site visits provided a great opportunity to show common durability performance issues with jointless bridges and to discuss remedial measures,” stated Dr. Attanayake.

With the relationship developed between the two institutes, Dr. Xiaoyun Shao, associate professor in the Department of Civil and Construction Engineering, could make a short-term visit to Fuzhou University to explore potential collaborations in her research area, structural dynamics and earthquake engineering. In addition to pursuing research collaborations and faculty exchange efforts, Dr. Attanayake is currently exploring avenues to develop student/scholar exchange programs to enhance research efforts at both institutes.

CERTIFICATION PROGRAM PROMOTES COLLEGE OF ENGINEERING AND APPLIED SCIENCES MISSION FOR CAREER-READY GRADUATES

Founded in 2002, the civil engineering program at Western Michigan University has become the third largest such program in the state of Michigan. The Department of Civil and Construction Engineering (CCE) mission is to provide students the opportunity to obtain stat-of-the-art engineering knowledge and skills through student-centered education whereas the College of Engineering and Applied Science (CEAS) mission is to prepare career-ready graduates.

In 2011, looking at both the CCE and CEAS missions, Dr. Upul Attanayake, associate professor of CCE, established a process in collaboration with the Michigan Concrete Association (MCA) for WMU CCE students to obtain the American Concrete Institute (ACI) Concrete Field Testing Technician - Grade I certification.
ACI certificates are accepted worldwide. Our students are certified during their junior year. State highway agencies, contractors, and testing labs ask for our students with certification because they can get our students directly walking to a construction site as certified technicians. The experience our students gain as certified technicians and the contacts they develop with the industry greatly help them secure jobs after graduation,” stated Dr. Attanayake.

So far, 65 students have taken the Grade I certification exam through this collaborative effort between WMU and MCA. Mr. David Hollingsworth, Director-Technical Services/Training, Michigan Concrete Association, manages the entire examination process with the help of several certified technicians from local companies. With the help of MCA, this examination is being conducted annually at the end of the spring semester at Parkview campus facilities.

NATIONAL SCIENCE FOUNDATION GRANT AWARDED FOR CODE SECURITY ANALYSIS

Drs. Steve Carr, and Zijiang Yang of Western Michigan University and Drs. Jean Mayo and Ching-Kuang Shene from Michigan Technological University, have been awarded a $300,000 National Science Foundation grant with $169,000 going to WMU and $131,000 going to MTU. The grant is entitled “VACCS - Visualization and Analysis for C Code Security.” The grant will develop an educational system that will utilize static and dynamic program analysis to help detect potential security vulnerabilities and use visualization to help teach programmers about the potential errors in their code. The goal of this project is to help students learn by seeing what is wrong with programs rather than just having it explained in words. Pictured below L-R: Dr. Steve Carr and Dr. Zijiang Zang.

DEFENSE ADVANCED RESEARCH PROJECTS AGENCY (DARPA) GRANT AWARDED

Dr. Jennifer Hudson of Western Michigan University, has received a $259,600 grant for her research project. The objective of this project is to develop trajectory optimization strategies for robotic satellite servicing. Future robotic servicers will be able to perform multiple operations, including on-orbit inspection, repositioning, end-of-life transport to disposal orbit, and deployment anomaly correction. The problem of how to design multi-target servicing missions, however, including selecting customer satellites and mission trajectories, is largely unexplored. They
will develop algorithms to find the optimal sequence of rendezvous and servicing operations given a large set of potential customer satellites in Geostationary Earth Orbit (GEO). The algorithms will include economic valuation of mission sequences and minimum-fuel trajectory optimization. Pictured right: Dr. Jennifer Hudson.

UPCOMING EVENTS

September 30: Custer Office Environment Lecture Series: Dan Miller, author of "48 Days To The Work You Love".

How would life be, if you never experienced the Monday blues? Have you asked yourself the question, “who do I want to be?”

Dan specializes in creative thinking for increased personal and business success. He believes that meaningful work blends our natural skills and abilities, our unique personality traits, and our dreams and passions. Dan is active in helping individuals redirect careers, evaluate new income sources, and achieve balanced living.

Dan is the author of the widely acclaimed "48 Days To The Work You Love" and "No More Mondays". He writes regularly for many popular magazines and web portals, including CBN.com, Crosswalk.com, In Touch, AARP and Success magazines and the Zig Ziglar newsletter. He has been a guest on CBS’ ‘The Early Show,’ MSNBC’s ‘Hardball with Chris Mathews,’ 700 Club’s Living The Life and Fox Business News with Dave Ramsey Show, to hit some highlights. He hosts a weekly podcast that is consistently ranked #1 under Careers on iTunes. Dan is also a frequent speaker and guest on popular radio programs like Moody Broadcasting, Crown Financial, Janet Parshall’s America, American Family Radio, and Prime Time Chicago. He also has an online community with over 15,000 “eaglepreneurs”!

Presentation at 4 p.m. at the Fetzer Center, Western Michigan University, directions to the Fetzer Center

The first 100 students with ID get the book "48 Days To The Work You Love" absolutely free.

Seating is limited: reserve your seat

RSVP (269) 276-3245 or ceas-custerlecture@wmich.edu

October 3: Open house program.

October 7: Curtis Shaneour Jr, WMU alumnus. President, Shane Group. Custer Office Environment Lecture Series

October 14: Engineering Expo 2015 career fair.

October 23: Open house program.

Environment Lecture Series

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Western Michigan University recognizes the importance of training a globalized workforce

WMU to play critical role in national manufacturing initiative

Two more prestigious awards for Stephen John and Joseph Barnett

Trustees name WMU engineering building for Elson S. Floyd