



Western Michigan University

# College of Engineering and Applied Sciences

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Help Shape  
the  
Future

March 14, 2012

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"Mach 2 travel feels no different." a passenger commented on an early Concorde flight. "Yes," Sir George replied. "That was the difficult bit."  
- Sir George Edwards -

## CEAS News

### Sunseeker Displayed at Chrysler Technology Center and the Team Got a One of a Kind Tour

The Sunseeker team visited the Chrysler Technology Center recently where the Sunseeker car was displayed at the tech center as well. After 2 days the students were ready to go to work for the company because of the experience they had with engineers who gave them an extensive tour of their latest technology, labs, and facilities. The Chrysler building itself is the second largest building in the United States and the company has between 13 and 14 thousand employees. Daily there are upwards of 4 thousand visitors that come through the doors, but the tour the Sunseeker team received was like no other. John Nigro and Lou Rhodes two Chrysler executives who also happen to be WMU College of Engineering and Applied Sciences graduates, were in charge of showing the students around, and really pulled out all the stops. The tour included a visit to the top floor board room and the impressive design center dome. The team was also introduced to the cold room where the temperature is  $-40$  to  $0$  degrees, the high temperature room where it can reach up to  $+140$  degrees, and extensive labs that do research on radio frequencies. One of the most impressive parts of the tour was the wind tunnel where winds hit up to a tornado force of 140 mph.

When the team was asked what they would like to do, Byron responded with one request, that it would be great if there was the possibility of seeing a Dodge Circuit EV car, an all-electric performance sports car prototype. The next morning they were welcomed with the site of the only Circuit EV in existence and they were taken for a test drive. Byron was able to ride along in the EV while some members of the team rode in other impressive Chrysler vehicles. However the EV is special in that there is no engine of any kind in the all-electric prototype. Three components propel it: a 200-kilowatt electric motor that drives the wheels; a lithium-ion battery system to power the electric motor; and a controller that manages energy flow. The electric motor has 268 horsepower and 480 pound-feet of torque; and goes from zero to 60 in less than 5 seconds. One can understand why the team members wanted to check this car out.

The Sunseeker team had obvious interest in the battery powered technology and was given the experience of seeing the process of beginning with an idea on paper to the step by step progression of the idea becoming a reality. Andrew shared that one of the most exciting aspects of the tour was seeing the impressive technology that showed the "how to" actually accomplish a hybrid drive system.

One of the engineers told the team about an experience of another engineer who drove a prototype vehicle home and when he woke up the next morning he found the vehicle turned on with the motor running. So Chrysler brought a team of engineers and their equipment right to his house and set up a lab to figure out why the car was seemingly starting on its own. The cause ended up being the engineer's Blackberry phone that he carried in his pocket and that whenever he received a text the frequency of the signal started the vehicle parked in his driveway.

This real world research and extensive exposure to the expertise, problem solving, sharing answers to the team's questions, and materials they received gave the Sunseeker team an educational experience that they won't forget. They plan on using all the information they gained from their trip on the existing Sunseeker car and for the next generation Sunseeker vehicle. For more Sunseeker news and information visit: [WMU Sunseeker](http://WMU Sunseeker)



Sunseeker Team with solar car displayed at Chrysler Technology Center

## 2012 Engineers Week Dinner and Scholarship Awards



**L-R:** Mitchell Zajac, Kelly McCarthy, Shannon Kloha, and Lindsay Fisher.

Four CEAS students received scholarships at the Engineers Week dinner which was held at the Fetzer Center recently. The 2012 recipients were **Mitchell Zajac** who is studying mechanical engineering, **Kelly McCarthy** who is studying graphic and printing science, **Shannon Kloha** who is studying electrical engineering, and **Lindsay Fisher** who is studying pre-chemical engineering. These students are all juniors at CEAS.

## CEAS Alumni Earns Armstrong Scholarship

**Shedrick Herrell** recently graduated from CEAS with a Bachelor of Science degree in Mechanical Engineering. He is described by his co-workers as being a great person to work with and that he painstakingly contributes substantial expertise to engineering projects. For these reasons and more Herrell was recently awarded a \$500 academic scholarship from Armstrong International, a



## Dr. John Patten Receives Honorary Golden Key Award

**Dr. John Patten** was recognized and inducted in the Golden Key International Honour Society as an honorary member based on scholarly research and notable projects and achievements that he has completed and received through Western Michigan University. As an honorary member Dr. Patten has full rights as a member and is encouraged to participate in Golden Key events throughout the year. Some of Dr. Patten's most recent accomplishments include:

- 2011 Thought Leaders in Energy
- Green Manufacturing Initiative one million dollar award from the Department of Energy
- Founder Green Manufacturing Initiative at WMU
- Director of Manufacturing Research Center
- Inventor of Micro-Laser Assisted Machining Technology (US Patent pending). For more information visit: [Dr. John Patten](#) and [Golden Key Int. Honour Society](#).



**L-R:** Deepak Ravindra Senior Research Associate, Dr. John Patten, & Lindsay Baker of Golden Key Int. Honour Society.

multi-national company based out of Three Rivers that offers intelligent systems in the areas of air, steam, and hot water. Armstrong personnel worked in combination with Herrell on several energy-related improvement projects. He helped to design and optimize HVAC systems based on cooling and heating load calculations for several campus locations. In addition, he was instrumental in managing various engineering projects for the University and Shedrick's diligent work led to many energy savings improvements on the WMU campus.

**L-R:** Will Grindall, Director of Institutional Markets, Armstrong International; Shedrick Harrell; David Casterline, Corporate Director of Communications, Armstrong International; and Tom Hiatt, Manager of Institutional Markets, Armstrong Int.

## Upcoming 50th Senior Engineering Design Conference on April 17th



The 50th Senior Engineering Design Conference will take place on Tuesday April 17, from 8:30am to 4:00pm at the College of Engineering and Applied Sciences on the Parkview Campus of Western Michigan University. The College of Engineering and Applied Sciences sponsors the conference to showcase the work of its graduating seniors, who are required to complete a capstone project that puts into practice what they have learned. Many of the projects are sponsored by business and industry. The conference is free and open to the public. You are welcome to attend all or part of the day's events. Reservations are not necessary. For more information visit: [Senior Engineering Design](#)

## Prefabricated Bridge Elements and Systems Workshop Touts Technology and Design

Instructors for the workshop included, **Haluk Aktan**, Ph.D., P.E., professor and chair at the Department of Civil and Construction Engineering at WMU, **Upul Attanayake**, Ph.D., P.E., assistant professor in the same department at WMU, and **Yufeng Hu**, Ph.D., P.E., faculty associate on the MDOT sponsored research project, *Rapid Bridge Construction, Demolition and Joint Durability*.

The objective of this workshop was to educate bridge engineers, contractors, and decision-makers in numerous areas of accelerated bridge construction (ABC), including:

- National and state perspectives and associated implementation plans
- Potential funding opportunities
- Bridge superstructure designs commonly used in ABC
- Constructability lessons learned through actual projects
- Constructability review process for successful implementation of ABC projects,
- Developing and interpreting special provisions for ABC



Connection for a prefabricated bridge element

Compared to traditional bridge construction, accelerated bridge construction (ABC) with prefabricated components offers a number of advantages, including:

- Minimal traffic disruption
- Minimal on-site construction time
- Improved work-zone safety, and
- Better quality components

## April 2012 Upcoming Sunseeker Events

**April 18-** Plainwell District Science Night, Plainwell Middle School, 5-7pm.

**April 24, 25-** Allegan Eco Races, US-131 Motor Sports Park in Martin, MI.

**April 27-** Gilkey Elementary School, Plainwell, MI.

**April 28-** Portage Green-a-Thon, Celery Flats Historical area, noon to 4pm.

## Don't Miss the Region 10 Science Olympiad this Saturday, March 17th



The competition begins at 8 a.m. until 3:30 on Saturday, March 17. Different events will take place in Wood Hall, Rood Hall, the Chemistry Building, Dalton Center, Bernhard Center and the Student Recreation Center. The awards ceremony will be held from 4 to 5pm. in the Bernhard Center Ballroom.