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Sting Like a Yellow Jacket: Engineering Team Competing in Eco-Marathon

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CEDARVILLE, OHIO -- Ready, set, sting! Cedarville University engineering students are preparing their energy-efficient vehicle, Sting, for the international Shell Eco-marathon Americas competition held at Sonoma Raceway in Sonoma County, California. The competition, which includes high schools and universities from North and South America, takes place April 3-6.

The Shell Eco-marathon encourages students to build, test and drive the ultimate energy-efficient vehicle. Vehicles are categorized into either Prototype or UrbanConcept class, then divided by energy type.

Sting will compete in the Prototype combustion category. The team is hoping to break 2,000 miles per gallon of gasoline this year, according to Dr. Larry Zavodney, senior professor of mechanical engineering and advisor to the team.

The Cedarville students competing are team leader Zachary Bretz, mechanical engineering junior (Lafayette, Indiana); Michael Moldenhauer, mechanical engineering freshman (Holt, Michigan); Brianna Ice, mechanical engineering freshman (Dover, Ohio) Madeline Chairvolotti, computer science freshman (Grand Isle, Vermont); Daniel Parker, computer engineering junior (Peoria, Illinois); Jonathan Ullom, mechanical engineering sophomore (Lake Wales, Florida), Sarah Seman, molecular and cellular biology sophomore (Delmont, Pennsylvania); Wesley Darst, electrical engineering sophomore (Normal, Illinois); and Ethan Manley, mechanical engineering sophomore (Xenia, Ohio).

Cedarville is one of a handful of schools that has participated in the international fuel-efficiency, supermileage car competition every year since 2007 when it came to the Americas.

Awards are given to the vehicle that can travel the furthest on the equivalent of one gallon of fuel, but off-track awards also recognize safety, teamwork and design.

Construction for Sting began in 2006 and raced for the first time in 2010. This year's team redesigned and fabricated new front wheel spindles to incorporate lower friction angle-thrust ball bearings and strengthened the steering linkage to reduce rolling resistance. They designed and installed new spoke covers for the front wheels to lower aerodynamic drag from the spinning wheels and upgraded the carbon fiber wheel cover access panel retainers.

The team upgraded the sophisticated student-designed electrical and computer systems that monitors everything (even the speed of the wind flowing over the car) and sends all data via CAN bus to an

Android Tablet that serves as the driver instrument panel. The ground crew at the track in California can access the website and monitor all systems on the car in real time.

“The competition provides the students with motivation to come, learn and do: this entire competition is extracurricular,” said Zavodney. “The students grow in ways that they can’t in the classroom. Being involved in a competition like this is one of the best things going for them; the number one thing employers look for these days is the ability to work well on a team.”

Located in southwest Ohio, Cedarville University is an accredited, Christ-centered, Baptist institution with an enrollment of 4,193 undergraduate, graduate and online students in more than 150 areas of study. Founded in 1887, Cedarville is recognized nationally for its authentic Christian community, rigorous academic programs, including its Bachelor of Science in Mechanical Engineering program, strong graduation and retention rates, accredited professional and health science offerings and leading student satisfaction ratings. For more information about the University, visit www.cedarville.edu.