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**Students put solar power to the test for hands-on learning—and waffles**

Written by Christine Bellport

Students put their engineering skills to the test in a flavorful way. The scent of freshly made waffles filled the air—not from a food truck, but from a solar-powered cooking station at Sesquicentennial Hall designed and built by students. The demonstration was part of a culminating event for Wind and Solar System Design (ENERGY 4330), a senior-level technical elective offered to [Sustainable and Renewable Energy Systems (SRES)](https://www.uwplatt.edu/department/sustainability-renewable-energy-systems) majors and minors, as well as mechanical engineering students at the University of Wisconsin-Platteville.

Rather than just studying theory from textbooks, these students brought their calculations to life. Throughout the semester, they used “clear sky radiation” equations to calculate the sun’s position and estimate the intensity of solar radiation. Then, using handheld tools and solar sensors, they measured actual solar angles and light intensity to confirm their predictions.

And then, those calculations powered a waffle iron.

“I try to include some experimental and experiential activities to keep the students engaged,” said Dr. Thomas Zolper, associate professor of mechanical engineering and renewable energy. “The solar waffle event is a hands-on activity where students design and build a solar energy system. It helps them understand how solar power converts to electric power, and how much power it can provide to household appliances.”

Dr. Zolper, who began as a mechanical engineering professor, was tapped to teach Fundamentals of Energy Sources (ENERGY 2340) in 2019, and by 2023, he had taken the helm of ENERGY 4330. He notes that the smaller SRES class sizes allow for more hands-on experiences and field-based learning.

“With just 12 students compared to the usual 24 in mechanical engineering, we can do things like field trips and solar waffle days without too much logistical trouble,” explained Zolper.

For many students, the SRES program is more than just an academic track. It is a commitment to a sustainable future.

“I didn’t think my values around sustainability could become a career, so coming here and seeing that it can is amazing,” exclaimed senior Kimmy Zender, from Twin Lakes, Wisconsin, who is graduating with a Bachelor of Science in SRES.

Zender has already accepted a position as an energy program manager with WPPI Energy in Sun Prairie and credits the program at UW-Platteville for her early success.

“In SRES, I had two different internships, and that kind of experience gives us a step up when we’re interviewing for jobs," said Zender. "The energy industry is changing every day, and we get to study something that evolves with new technology. Being on the forefront of that is such a cool opportunity.”

The SRES curriculum offers a well-rounded approach to sustainability and energy. Students explore solar, wind, hydroelectric and biomass technologies, while also learning about energy conservation strategies like green building design, along with the policy and business aspects of the renewable energy industry.

As waffle irons sizzled under the sun, the SRES program cooks up more than just breakfast. It is preparing the next generation of energy innovators.