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LSU Center for Computation & Technology, BRCC Host Baton Rouge Energy Venture Camp

LSU

Thirty-one students and one teacher from 17 area schools recently had a first-hand view of how science, technology, engineering and math – or STEM subjects–are applied in the ever-growing engineering, technology and energy industries.

Now in its second year, the campuses of both LSU and Baton Rouge Community College hosted the Baton Rouge Energy Venture Camp July 28-Aug. 1.

The camp is sponsored by Shell and the Louisiana Alliance for Simulation-Guided Materials Applications and supported by LSU's Center for Computation and Technology; the LSU Petroleum Engineering Research & Technology Transfer, or PERTT, Laboratory; LSU Chemical Engineering, LSU Dairy, LSU Agricultural Department, BRCC STEM and BRCC Process Technology; and Gulf South Solar. Its goal is to blend fun and education activities while introducing students to professional and technical job opportunities in the energy sector.

During the week-long camp aimed mainly at ninth- through eleventh-graders, students performed numerous hands-on experiments and hear from experts as they explore the process of energy development, including how oil and natural gas are formed and the ways various types of energy are used.

Heading the camp were Jeannette Thompson and Richard Hansen, both teachers at The Dunham School in Baton Rouge with a combined background in physics, computers, astronomy, chemistry, environmental and chemical engineering.

While learning about sustainable construction at LSU AgCenter's LaHouse facility, Shell Energy Venture campers construct their own insulation projects, aimed at keeping ice from melting.

"This camp introduces kids to the STEM fields and helps to remove the fears and get excited about them, with a big focus on energy and the engineering fields," Thompson said. "It's not necessarily to create engineers, but to give the students a first-hand look at these careers. They're taking part in hands-on activities every day and looking at equipment used in the field."

Thompson said she had the idea to bring the camp to Baton Rouge two years ago, after attending a similar camp at the University of New Orleans with her son and three of her students. After the experience, she said, she contacted Shell and inquired about bringing the camp to Baton Rouge.

"I absolutely loved it," she said of the New Orleans camp. "It was not your average camp where you go and, as you leave, you're not sure what you learned. My son was taking part in the activities. I asked if we could have the camp here, because we have so many kids and the industry is already here. We held the first camp last year with 26 kids from area schools."

During the first two days of the camp, students visited two BRCC campuses and learned about the basics of energy including density, pressure, heat, electricity, phase change, resistance and Bernoulli's principle of fluid dynamics. They also studied the cycle of energy, learned about renewable and non-renewable energy sources and how electricity is generated and stored through means such as cooling towers, solar energy, engines and crude oil extraction.

"Learning about the drilling process is not normally something you'd have in a science camp," Thompson said.

At the end of the camp, students grouped together to demonstrate energy and engineering principals they learned during the week.

The final three days of the camp were held at LSU, where they were able to see much of what they learned at BRCC in application. The students visited the university's co-generation power plant to learn about how water chilling and heat exchange is used to provide power to most of the LSU campus. They also saw the inner workings of the LSU AgCenter Dairy Store and Creamery.

"We had master's and doctoral students from LSU's chemical engineering department who help to keep the students together," she said. "Plus, we have students who are team leaders and actually came a week early to learn what we're doing ahead of the camp."

While gathered in the Frank Walk Design Presentation Room in the LSU Engineering Laboratory Annex, the students learned about technology as they used programming in working with Boe-Bots, which are small robotic vehicles. They were also introduced to Raspberry Pi, which is a credit-card sized computer that can be used for numerous functions.

On the final day of the camp, the students learned about oilfield operations during a tour of the PERTT Laboratory and about sustainable home construction and energy conservation as they toured the LSU AgCenter's LaHouse Resource Center.

To close the camp, the students gave group presentations on specific aspects of energy that they studied during the week, with an audience comprised of their peers and their parents.

"They work on their presentations throughout the week," Thompson said of the students. "We give them constructive criticism as they go along to help them prepare the best they can."

Using small robots called Boe-Bots, Shell Energy Venture Camp students learned about computer programming and robotics in the LSU College of Engineering's Frank Walk Room.

During the sessions at the PERTT Laboratory, Shell representative David Esquibel spoke to the students about working in the petrochemical industry. He was joined by four employees from the nearby Shell refinery in Geismar, La., who told stories of how they entered their respective fields and how education in the STEM subjects is vital to the petrochemical industry.

"Shell does these camps because we want to introduce you to our industry," he told the students. "We want you to understand our industry, not only in the two-year degree realm but in the four-year degree realm as well."

Esquibel said he felt the camp offers students a leg up over other students in that it gives them an up-close look at a field they may consider entering after high school.

"What you're experiencing is giving you an edge, especially if you're thinking about going into a STEM career," he said. "You're gaining a competitive advantage. How many students these kids' ages get an opportunity to go out and look at a facility such as the PERTT Lab and get some hands-on experience that they wouldn't get to have anywhere else?"

Madeline Juneau, a student from Baton Rouge Magnet High School who also attended the camp last year, said she enjoyed learning about STEM careers while in a college atmosphere.

“It was nice to be able to go around the LSU and BRCC campuses, because these are places we can go for our future education,” she said. “To be able to see the different opportunities we have in our own city is really nice. I want to be a civil engineer, so this was a great learning experience for me.”

Thompson said the camp’s focus on energy provides important lessons for the students that will affect their future.

“Teaching energy is, perhaps, as important as teaching grammar or history,” she said. “As these students are the next generation of energy users, they will be better prepared to choose energy sources and behaviors that will benefit everyone by creating a sustainable energy future.”

For more information on the Energy Venture Camp, visit https://www.cct.lsu.edu/EnergyVenture2014.

Aaron Looney/University Relations

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Center for Computation & Technology
2003 Digital Media Center • Telephone: +1 225/578-5890 • Fax: +1 225/578-8957