

MICRO-INTERNSHIP

Hartnell STEM Micro-internship: Aquatic Engineering Design and Prototyping for Arroyo Seco Duck Race 2022



HARTNELLCOLLEGE

Mentor: Dr. Melissa Hornstein, Engineering Faculty

Seven teams composed of 20 Hartnell students prepared for and competed in the Arroyo Seco Citizens Association Duck Race Festival on Saturday, April 30, 2022, an experience that also served as a 25-hour microinternship led by engineering instructor Dr. Melissa Hornstein. The annual event is held on the Arroyo Seco River in south Monterey County. (Pictured: The participants with Dr. Hornstein (back row, red shirt.)

The students followed the engineering design cycle to design, construct, prototype, test, and compete enhanced large floating ducks to go the fastest up and down a stretch of river at the "Unlimited" Engineering Duck Race, the feature of the festival, through remote control of the ducks. Many ducks were powered with small electrical controlled motors, several remotely controlled by Arduino microcontrollers.

Although none of this year's entries defeated competitors from their engineering counterparts at Monterey Peninsula and Cabrillo colleges, Dr.

Hornstein reminded the students that "winning isn't the only point," adding, "We learned a lot about engineering project management. Perhaps this was the first real project you did from start to finish. That in itself is an accomplishment."

Students echoed that sentiment in reflections on the experience that they submitted to Dr. Hornstein. Wrote electrical engineering major Leslee Still, "My advice to others would be to start the design process right away. Think it through and research all the components to ensure compatibility and ease of use. Don't overthink or try to over engineer. Sometimes simpler is better. Enjoy the process and celebrate the wins no matter how small. Get to the pool for testing early so you have time to make modifications if necessary. In the end if you have learned something then you have won."

For more information on the Arroyo Seco Annual Duck Race Fest, see: www.asca-ca.org/annual-duck-race-fest

