

2021 Sound School Ocean Engineering Class Press Release

Students in the Sound School's senior Ocean Engineering 2 class didn't let being at home during remote learning keep them from designing and building an award-winning underwater robot, and their hard work and dedication has paid off with a trip to the World Championships!

The year-long, culminating exercise in the two-year Ocean Engineering course sequence is the preparation of an entry in the Marine Advanced Technology Education (MATE) Center's International Remotely-Operated Vehicle (ROV) Competition. The competition features a set of tasks that teams' robots have to complete, all centered around this year's competition theme of clean, healthy waterways and oceans. Students had to create an underwater robot capable of installing power connectors and replacing filters on a pollution control device, removing debris from all levels of the water column, flying transects for mapping underwater terrain, propagating corals to new growth areas, and collecting samples of sponge species for research, among others. Points are awarded not only for the vehicle's performance of the required tasks, but also for the team's poster display, 20-page technical report, and their engineering presentation to a group of judges who are professionals in the field.

In completing their vehicle project, students make use of their knowledge and experience gained in curriculum units on Computer-Aided Design (CAD), Electronics, Hydraulics/Pneumatics, Subsea Physics, Underwater Technology, Mechanical Engineering, Programming & Robotics, Project Planning & Coordination and most importantly, teamwork and working with others in small groups. Using online project planning software, this year's team collaborated on designs, designated tasks and job assignments virtually, then modeled their ideas using cloud-based CAD software, and then finally used 3-D printing to create their tools and vehicle, all before ever returning to in-person learning in the spring! Once they were able to come together in a socially-distanced, in-person classroom together, they made quick work of assembling all of the systems and putting the final touches on their vehicle, for entry in the New England Regional ROV Championships, which were held in late June this year. They first submitted their technical documentation and poster displays in advance, then participated in a virtual session to present their engineering evaluation to the judging panel. Even though they had already graduated and received their diplomas, these dedicated students continued working on and improving the vehicle, which they then demonstrated in the pool (on video) for the judges, who were in Massachusetts and Rhode Island, watching remotely. Talk about 21st century skills! All that hard work paid off when they learned recently that they received the top score out of all teams in the New England Regional ROV Championships, winning the competition and earning a place to compete in the upcoming [MATE ROV World Championships](#) at Tennessee State University on August 5th.

The team is now continuing to work on further improving their systems and making the robot even better, so that they can go into the Worlds with confidence and a great robot. Congratulations Sound School Ocean Engineering seniors: we know you will represent yourselves, your school, and all of New Haven well in August. Best of luck!