



Underwater ROV Performance Challenge Guidelines and Parameters 2017

OVERALL OBJECTIVE

To challenge the Engineering and Technological skills of student teams through underwater challenges that stress speed, agility, fun, problem solving and teamwork.

PURPOSE

- Engage youth in an exciting project that purposefully blends engineering, science, math, and advancing technologies.
- Provide 4-H members with an enjoyable, challenging and unique project focused on engineering, science, math and technology in a marine environment.
- Link excellent teaching and learning practices with increasing corporate demands for skilled, creative and energetic employees.
- Showcase the creative engineering strengths of today's students at a 4-H State competition that focuses on vehicle performance and youth control of the vehicle.
- Honor submarine engineering and innovation through fun competition

SEAPERCH ROVs

SeaPerch is an innovative underwater robotics program that equips teachers and students with the resources they need to build an underwater Remotely Operated Vehicle (ROV) in an in-school or out-of-school setting. Students build the ROV from a kit comprised of low-cost, easily accessible parts, following a curriculum that teaches basic engineering and science concepts with a marine engineering theme. The SeaPerch Program provides students with the opportunity to learn about robotics, engineering, science, and mathematics (STEM) while building an underwater ROV as part of a science and engineering technology curriculum. Throughout the project, students will learn engineering concepts, problem solving, teamwork, and technical applications.

Building a SeaPerch ROV teaches basic skills in ship and submarine design and encourages students to explore naval architecture and marine and ocean engineering principles. It also teaches basic science and engineering concepts and tool safety and technical procedures. Students learn important engineering and design skills and are exposed to all the exciting careers that are possible in naval architecture and naval, ocean, and marine engineering.

SAFETY

Safety is of key concern at all events. The design of the vehicles is only one variable in the safety of an event. Inspection of the vehicles to ensure that they meet safety rules, having an operations area that is free from obstructions, and making sure participants and spectators are not in harm's way are some of the requirements.

OVERVIEW

- Participant Groups will compete based upon their SeaPerch Design: Stock Class or Open Class in order to ensure the fairness of the competition. Stock Class ROVs will only compete against Stock Class ROVs and Open Class ROVs will only compete against Open Class ROVs.
 - **Stock Class:** Teams may ONLY utilize materials (quantity and components) equivalent to one SeaPerch Kit. Reasonable spare parts are included.
 - **Open Class:** Teams may utilize materials not included in the SeaPerch kits but with a limit of \$100 per team per ROV.
- 4-H teams will create a display board or scrapbook detailing their progress of building the ROV.
- The 2017 Florida 4-H ROV Challenge is Saturday, November 18 at the Palm Beach County Extension Office in West Palm Beach (559 N. Military Trail, West Palm Beach, FL 33415).
- ***All teams must register to participate in the Challenge by October 21, 2017.***

CHALLENGE FOR 2017

- 4-H teams will navigate underwater obstacles with their Sea Perch ROVs.
- Teams have two timed runs of the course.
 - The competition time will be an average of both timed runs.
 - The teams with the fastest average time completing the course and successfully navigating the challenges will be the winner.
- Teams will be able to practice the challenge obstacles in a different orientation than the timed event prior to their official timed run.
- Teams must designate a single team member to drive the ROV during the competition.