

On the Water Challenges

All Challenges can be done in Full-Autonomous or Semi-Autonomous (manual Control of Rudder) modes. Semi-autonomous mode is easier and is very useful when learning to code and learning how the boat behaves.

Basic Maneuvers that need only a Wind direction sensor:

1. Tack turn:

Sail on a Close Haul or Close Reach, turn bow 90° through wind, then continue on a Close Haul or Close Reach

2. Jibe turn: stern 90° through wind

Sail on a Broad Reach, turn stern through wind, then continue on a Broad Reach

3. Get out of irons

Start boat in irons. Get out of irons within a given amount of time, continue on given point of sail

4. Head up to a given point of sail

Start boat at some point of sail, head up to a given point of sail within a given amount of time, and continue on that course

5. Bear Off to a given point of sail

Start boat at some point of sail, bear off to a given point of sail within a given amount of time, and continue on that course

6. Tacking > 90° (side to side course)

Start boat at some point of sail, change course to a beam reach, tack around to the other beam reach, and continue as such.

7. Beating-upwind course –

Starting behind a “line”, sail upwind to cross another line approx. 30m upwind. Finish position should be with +/-15 meters side to side

8. Run-downwind course –

Starting behind a “line”, sail downwind to cross another line approx. 30m upwind. Include at least 1 jibe
Finish position should be with +/-15 meters side to side

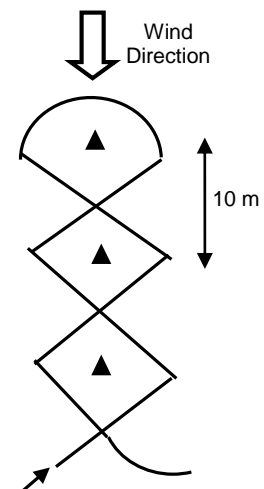
9. Sail a 20 meter circle/diamond

Complete a course where you finish within 3 meters of your start position. Sail out in a circle/diamond pattern with at least 1 tack and 1 jibe. May be sailed full or partial autonomous

10. CBI Helmsman Test

Boats will sail a course similar to the course that CBI Adult and Junior members sail to earn their Helmsman/Yellow Rating. The course includes 3 buoys in a windward-leeward line, spaced approximately 10 meters apart. Boats start below the leeward mark and sail upwind performing 3 tacks around the buoys, round the windward mark and sail downwind performing 3 jibes around the buoys and finishing below the leeward mark.

If a boat needs to switch to manual control they must return to the start to sail the course again for full-autonomous points.



Advanced Maneuvers

Maneuvers that need a Wind direction sensor and a Compass

11. Sail at compass angle

Start sailing at a given heading from a starting point. Make one course change to the desired compass angle (desired angle will not be in the no-go range and no tack or jibe required)

12. Sail at compass angle with tack/jibe

Start sailing at a given heading from a starting point. Make one course change to the desired compass angle (desired angle will not be in the no-go range, 1 tack or jibe required).

Maneuvers that require at least a Wind direction sensor, a Compass, and GPS

13. Station keeping course –

Boats will sail into a 20 m x 20 m "box" formed by four buoys with known GPS locations. The boats should remain in the box for a given amount of time, then exit the box.

14. Sail through Finish Line

Sail through a finish line determined by GPS coordinates from a given starting position that is approximately 20 meters away.

15. Sail to WayPoint

Sail to within 3 meters of a waypoint from a given starting position that is approximately 20 meters away.