

Engineering & Communication: Engineering Evaluation

Team name and # AS IT APPEARS ON THE TEAM LIST:

Judge's name:

1 0 = Yes (1) or No (0) 2 1 0 = 2: Excellent, 1: Good, 0: Poor or missing

SCORE

Teamwork/Presentation

17 pts max

Team was prepared for the presentation	1 0
Presentation was thought through, organized, and articulate	2 1 0
Presentation covered the design and building process	2 1 0
Presentation addressed possible safety issues	2 1 0
Presentation highlighted design innovations/creative ideas	2 1 0
Team demonstrates an understanding of the ROV systems and operation	2 1 0
Each member participated and understands the systems and operations	2 1 0
Role of each team member is acknowledged during the presentation	1 0
Team members demonstrated they encountered challenges with determination and resolve as well as with a sense of humor	2 1 0
Team demonstrates an understanding of the role that ROVs play in the mission theme	1 0

Overall Design and Workmanship

13 pts max

Ready for the water	1 0
Been tested prior to the event	2 1 0
Team developed a safety and/or vehicle checklist or protocol	1 0
Built according to the competition safety requirements and has passed safety inspection (inspection card presented to judges)	2 1 0
Displays warning labels and safeguards	1 0
Meets competition guidelines for construction (material, non-hazardous materials, etc.)	2 1 0
Components easy to access for maintenance & troubleshooting	2 1 0
Built to accomplish mission	2 1 0

Systems Design and Operation

Overall Vehicle System

13 pts max

Team built the systems "from scratch" or using individual commercial components. (<i>Score this item by adding one point for each sub-system built in this manner</i>)	7 6 5 4 3 2 1
Safety is increased with design innovations	2 1 0
Cost is decreased with design modifications	2 1 0
Functionality is increased with design or modifications	2 1 0

Control and Electrical System

7 pts max

Control System is thought through and designed logically	1 0
Components logically and neatly incorporated	1 0
Fuse(s) in place on the positive side	1 0
Computer or Manual Controllers (Score one set)	
<u>Computer</u> - software code is thought thru	1 0
- designed by students	1 0
- team has a good command of s/w flow	1 0
- the system is operational	1 0
OR	
<u>Manual</u> - switches laid out intuitively	1 0
- switches are clearly labeled	1 0
- students are able to manipulate switches easily	1 0
- the system is operational	1 0

Propulsion

5 pts max

Thrusters are securely attached	1 0	
Thrusters do not obstruct water flow	1 0	
Thrusters are waterproofed and protected	1 0	
Appropriate number of thrusters to accomplish mission	1 0	
Appropriate size of thrusters to accomplish mission	1 0	
Buoyancy and Ballast	3 pts max	
Vehicle has buoyancy/ballast system	1 0	
System takes stability into account	1 0	
System takes missions into account	1 0	
Sensors	8 pts max	
Cameras are suited to mission objectives (i.e., waterproofed, no obstructions to view)	2 1 0	
Sensors demonstrate application of knowledge and skills	2 1 0	
Sensors are appropriate to accomplish mission tasks	2 1 0	
Other sensors present (1 pt for each up to 2 pts)	2 1 0	
Payload Tools	6 pts max	
Payload tools are appropriate for accomplishing mission	2 1 0	
Single payload tool has multiple uses	2 1 0	
Payload tools demonstrate creativity, unique features, and application of knowledge and skills	2 1 0	
Tether	3 pts max	
Tether is securely attached to ROV	1 0	
Tether is neatly bundled and protected	1 0	
Team developed tether management protocol	1 0	
Originality	3 pts max	
Contains original concepts and unique designs in vehicle	1 0	
Team completed actual construction of ROV	1 0	
Team designed and completed electrical system	1 0	
Budget	2 pts max	
Team describes how budget was developed and adhered to during project	1 0	
Companies, individuals who contributed funds, equipment, and/or technical/moral support are acknowledged	1 0	
Engineering Evaluation Score:		
Discretionary Points	3 pts max	
Bonus points for a job well done	3 2 1	
Penalty Points	-5 pts max	
Mentor, instructor, etc. exercised more than advisory role	-3 -2 -1	
Overuse of commercial, off-the-shelf systems	-2 -1	
Engineering Evaluation Total Score:		

Note: Two points for entire vehicle testing prior to event; 1 point for component testing, but not integrated vehicle

Note: One point given for presentation of SIGNED safety checklist