

# Engineering Communication: Engineering Evaluation

## Judge's Evaluation Sheet

School/Team: \_\_\_\_\_ Judge: \_\_\_\_\_

Class (circle one):      RANGER      EXPLORER

Judges: Please score the team's items below and record the score in the space provided in the right hand column. The total number of points possible (excluding discretionary and penalty) is 100.

**1 0** = Yes (1) No (0)

**2 1 0** = 2 - excellent, 1 - good, 0 - poor or missing.

	<b>100 pts max</b>	<b>SCORE</b>
<b>TEAMWORK/PRESENTATION</b>	<b>18 pts max</b>	
The team was prepared for the presentation	2 1 0	
The presentation was thought through, organized, and articulate	2 1 0	
The presentation covered design and building processes	2 1 0	
The presentation addressed possible safety issues	2 1 0	
The presentation highlighted design innovations/creative ideas	2 1 0	
The team demonstrates an understanding of the ROV systems and operation	2 1 0	
Each member understands its systems and operations	2 1 0	
Team members exemplify teamwork and ideals of working together	2 1 0	
Team member demonstrated they encountered challenges with determination and resolve as well as with a sense of humor	2 1 0	
<b>OVERALL DESIGN AND WORKMANSHIP</b>	<b>15 pts max</b>	
Ready for the water	1 0	
Been tested prior to the event	1 0	
Passes the safety inspection (team has inspection card)	1 0	
Meets the competition safety requirements	1 0	
Displays warning labels and safeguards	1 0	
Made of non-corrosive materials	1 0	
Cannot release hazardous materials into the pool	1 0	
Systems well laid out and secure	2 1 0	
Components easy to access for maintenance & troubleshooting	2 1 0	
Built within the imposed design and safety constraints	2 1 0	
Built to accomplish missions	2 1 0	
<b>SYSTEMS DESIGN AND OPERATION</b>		
<b>Overall Vehicle System</b>	<b>10 pts max</b>	
Team built the systems "from scratch" or using individual commercial components*	10 9 8 7 6 5 4 3 2 1	

\* score this item by adding one point for each system built in this manner

<b>Control and Electrical System</b>	<b>10 pts max</b>	
Control system is thought through and designed logically	2 1 0	
Components logically and neatly incorporated	2 1 0	
Fuse(s) in place on the positive side	2 1 0	
<b>Computer or Manual controllers (score one set)</b>		
Computer – software code is thought thru	1 0	
– designed by the students	1 0	
– team has a good command of s/w flow	1 0	
– the system is operational	1 0	
	OR	
Manual – 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	

<b>Subtotal page 1:</b>		
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<b>Propulsion</b>		<b>7 pts max</b>
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 missions	2 1 0	
Appropriate size of thrusters to accomplish missions	2 1 0	
<b>Buoyancy/Ballast</b>		<b>4 pts max</b>
Vehicle has buoyancy/ballast system	1 0	
System takes stability into account	1 0	
System takes missions into account	2 1 0	
<b>Sensors</b>		<b>7 pts max</b>
Camera is present	1 0	
Camera is waterproofed	1 0	
No obstructions to camera's view	1 0	
Sensors demonstrate creativity and application of knowledge and skills	2 1 0	
Other sensors present (1 pt for each up to 2 pts)	2 1 0	
<b>Payload Tools</b>		<b>8 pts max</b>
Payload tools are appropriate for accomplishing missions	2 1 0	
Payload tools incorporate unique features	2 1 0	
Single payload tool has multiple uses	2 1 0	
Payload tools demonstrate creativity and application of knowledge and skills	2 1 0	
<b>Tether</b>		<b>5 pts max</b>
Tether is securely attached to ROV	1 0	
Tether is neatly bundled and protected	1 0	
Tether is easy to handle	1 0	
Team developed tether management protocol	2 1 0	
<b>Originality</b>		<b>14 pts max</b>
Contains original concepts and unique designs in vehicle	2 1 0	
Safety is increased with design innovations	2 1 0	
Cost is decreased with design or modifications	2 1 0	
Functionality is increased with design or modifications	2 1 0	
Team completed actual construction of ROV	2 1 0	
Team designed and completed electrical system	2 1 0	
Team developed software for ROV	2 1 0	
<b>Budget</b>		<b>2 pts max</b>
Project stayed on budget	1 0	
Companies, individuals who contributed funds or equipment acknowledged	1 0	
<b>Engineering Evaluation Score:</b>		
<b>Discretionary Points</b>		<b>3 pts max</b>
Bonus points for a job well done	3 2 1 0	
<b>Penalty Deductions</b>		<b>-5 pts max</b>
Mentor, instructor ,etc. exercised more than advisory role	-3 -2- 1	
Overuse of commercial, off-the-shelf systems	-2 -1 0	
<b>Total Score:</b>		

**Comments:**

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