

# 2020 SeaPerch Challenge – Technical Design Report Rubric



**TOTAL SCORE** **63/100**

## Scoring Guidelines:

**Poor (0 points)**

Requirements missing.

**Fair (1 points)**

Minimally meets requirements. Below Average.

**Good (2 points)**

Meets basic requirements. Average.

**Excellent (3 points)**

Meets all requirements. Above Average.

**Exceptional (4 points)**

Meets and exceeds requirements. Superior.

**TEAM NUMBER**

(if used)

**TEAM**

Racer

**ORG./SCHOOL**

Jackson Middle School

**CLASS/DIVISION**

Middle School Stock

**JUDGE**

C. Kozar

1. Abstract	0	1	2	3	4	Comments
Limited to ½ page	Exceeds page limit.		Within page limit.			Abstract is ½ page.
Report summarization	Does not summarize main points of the report.		Includes a clear overview of the report.			Abstract provides an overview of what will be in the report.
Unique ROV design and/or design process	No discussion of ROV design or process.	Limited discussion of design and/or process.	Overview of design and/or process with minimal focus on unique traits.	Overview of design and/or process with focus on unique traits.	Robust discussion of unique design and/or process.	Abstract does not discuss design or engineering design process in enough detail.
TOTAL ABSTRACT SCORE (8 POINTS MAX):						5

2. Task Overview	0	1	2	3	4	Comments
Limited to ½ page	Exceeds page limit.		Within page limit.			Task overview is ½ page.
Overview of the competition tasks	No overview of competition tasks.	Limited overview of obstacle or mission course.	Good overview of obstacle or mission course.	Overview of tasks for both courses; may lack task detail.	Detailed discussion of all tasks for both courses.	Excellent description of tasks and courses.
Design approach justification	No discussion of task influence on design.	Limited overview of how tasks impacted design.	Basic discussion of how tasks impacted design.	Good discussion of how tasks impacted design.	Robust, detailed discussion of design justification.	The team could have been more detailed about their design justifications.
TOTAL TASK OVERVIEW SCORE (10 POINTS MAX):						9

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3. Design Approach	0	1	2	3	4	Comments
Limited to 2 pages	Exceeds page limit.		Within page limit.			Design Approach is more 2 pages with the way the photos are formatted.
Team's approach to the engineering design process (EDP)	No overview of team approach to EDP.	Discussion focuses on reiterating published information.	Minimal discussion of team's incorporation of EDP.	Good discussion of team's approach to EDP.	Robust discussion of team's strategy to EDP.	Good discussion of EDP but could be more detailed.
Design iterations	No discussion of design iterations.	Limited discussion of design iterations.	Basic discussion of design iterations.	Good discussion and analysis of design iterations.	Robust discussion and analysis of design iterations.	The team did not address each design iteration in detail.
Conceptual drawings and/or graphics	No drawings or graphics.	Minimal graphics that lacks context within report.	Includes graphic(s) with basic context within report.	Good graphic(s) with context within report.	High-quality graphics with labels that enhance text.	The team did not label pictures. Some charts but no graphs included.
Final design	No discussion of final design.	Minimal discussion of final design.	Basic discussion of final design features.	Good discussion of final design features and decisions.	Robust discussion of final design features and decisions.	The team did not go into detail about why the final design was chosen or what special features the ROV had.
Novelty of ROV design or approach	No discussion of design or approach novelty.	Limited discussion of what makes the ROV design or approach unique.	Basic discussion of design or approach novelty.	Good discussion of design or approach novelty.	Strong discussion and analysis of novelty of ROV design and/or approach.	The team needs more detail about what makes their ROV unique or what was unique about their design approach.
Scientific and engineering terms	Includes no engineering terms.	Includes less than 5 engineering terms.	Includes 5+ terms; not fully embedded or does not add to context.	Includes 5+ engineering terms embedded in text that enhance the section.		Includes more than 5 engineering and scientific terms.
TOTAL DESIGN APPROACH SCORE (25 POINTS MAX):						13

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4. Experimental Results	0	1	2	3	4	Comments
Limited to 1 page	Exceeds page limit.		Within page limit.			Results section is 1 page.
In-water and/or simulated testing overview	No discussion of testing.	Limited overview of testing conducted.	Basic overview and discussion of testing conducted.	Good discussion and analysis of testing conducted.	Exceptional discussion and analysis of testing models utilized.	The team has minimal information and detail about the tests they used on their ROV.
Impact of testing on subsequent designs	No discussion of testing impact on design.	Minimal discussion of impact of testing on design.	Basic discussion of how multiple designs were impacted by testing.	Good discussion and analysis of testing impact on multiple design iterations.	Robust discussion and analysis of testing impact on multiple design iterations.	There is some discussion on how the tests impacted the design, but it is lacking in detail.
Test results	No test results included.	Limited test results not supported by graphs or charts.	Basic discussion of test results supported by graphs and/or charts.	Good analysis of test results supported by graphs and/or charts.	Robust analysis of test results supported by graphs and/or charts.	The team only shows charts for one test. The other test runs are not recorded in a chart or graph.
TOTAL EXPERIMENTAL RESULTS SCORE (14 POINTS MAX):						8

5. Reflection & Next Steps	0	1	2	3	4	Comments
Limited to 1 page	Exceeds page limit.		Within page limit.			Reflection is 1 page.
Reflection on the design process	No reflection on the design process.	Limited reflection on the design process.	Basic reflection on the design process.	Good reflection and basic analysis of the design process.	Thoughtful reflection and analysis of the design process.	Excellent reflection of the process used to accomplish the tasks.
Next Steps	No discussion of next steps.	Limited discussion of next steps.	Basic discussion of next steps.	Good overview of future plans for ROV and/or team.	Robust overview of future plans for ROV and team.	Good discussion of future plans for the ROV and team.
TOTAL REFLECTION & NEXT STEPS SCORE (10 POINTS MAX):						9

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6. Acknowledgements	0	1	2	3	4	Comments
Acknowledgement of support	Not included in report.		Supporters recognized in report.			Acknowledgments are included.
TOTAL ACKNOWLEDGEMENTS SCORE (2 POINTS MAX):						2

7. References	0	1	2	3	4	Comments
References follow APA format	Does not follow APA format.		Follows APA format.			Report follows APA format.
Includes references to support report	No references or citations.	1-3 references that are not cited in the report.	1-3 references that are cited in the report text.	4+ references that are cited in the report text.		Report has 3 references with 1 cited in the report.
TOTAL REFERENCES SCORE (5 POINTS MAX):						5

8. Budget	0	1	2	3	4	Comments
Includes itemized budget	Section not included in report.		Section included in report.			Budget sheet is included in the appendix of the report.
TOTAL BUDGET SCORE (2 POINTS MAX):						2

9. Fact Sheet	0	1	2	3	4	Comments
Includes fact sheet	Section not included in report.		Submitted in approved format.			Fact sheet does not follow approved format. ★ Fact sheet is included but does not follow the correct format.
Fact sheet content	Required content not included.	Low-resolution or blurry images and missing content.	Low-resolution or blurry images and all content included.	Hi-resolution images and clear content.	Hi-resolution images and content clearly supports report.	Images and content support report.
TOTAL FACT SHEET SCORE (6 POINTS MAX):						4

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10. Writing Skills	0	1	2	3	4	Comments
Organization	Organization severely impacts ability to follow the report.	Minimal organization with section headers.	Good organization of discussion within each section.			Organization of report is well organized.
Readability	Report is inconsistent and difficult to follow.	Report is somewhat inconsistent and difficult to follow.	Report is mostly consistent but lacks some clarity, focus, and/or cohesion.	Report is well written and easy to follow.	Concise and cohesive report that is easy to understand and supported by text and graphics.	Report is easy to read and understand. Graphics and photos could be better in order to support the teams findings.
Spelling and Grammar	Significant spelling or grammatical errors (5+)	Minimal spelling or grammatical errors (1-5)	No spelling or grammatical errors.			A few spelling and grammatical errors noticed.
TOTAL WRITING SKILLS SCORE (8 POINTS MAX):						6

11. Paper Format	0				10	Comments
<p>Follows all formatting guidelines:</p> <ul style="list-style-type: none"> <li>- 5 pages max (excluding sections 6-7 and appendices)</li> <li>- Page size: 8.5"x11"</li> <li>- Margins <math>\geq</math> 0.8 in.</li> <li>- Times New Roman 12pt</li> <li>- Single Spaced</li> <li>- Footer with team name and page # on all pages</li> <li>- Submitted in pdf format</li> </ul> <p>(Handwritten reports are allowed but must follow all guidelines above with the exception of specified font)</p>	Does not meet all formatting guidelines.				Meets all formatting guidelines (10 points).	<p>Only four of the guidelines have been met.</p> <p>One image exceeds the 0.8inch minimum.</p> <p>Font is not Times New Roman.</p> <p>Page number and team name not in footer.</p>
TOTAL PAPER FORMAT SCORE (10 POINTS MAX):						0