# **Technical Design Report Rubric**

2021 SeaPerch Season

Scoring Guidelines:			OTAL SC	ORE		
<b>Poor</b> (0 points) Requirements missing.			TEAM NU	MBER		
<b>Fair</b> <i>(1 points)</i> Minimally meets requirements. Below Average.			_	f used)		
<b>Good</b> (2 points) Meets basic requirements. Average.			ORG./SC	TEAM HOOL		
<b>Excellent</b> (3 points) Meets all requirements. Above Average.			CLASS/DIV	ISION		
<b>Exceptional</b> (4 points) Meets and exceeds requirements. Superior.			J			
1. Abstract	0	1	2	3	4	Points

Limited to ½ pageExceeds page limit.Within page limit.ImageReport summarizationDoes not summarize main points of the report.Includes a clear overview of the report.Includes a clear overview of the report.Unique ROV design and/or design processNo discussion of ROV design or process.Limited discussion of design and/or process.Overview of design and/or process with focus on unique traits.Robust discussion of unique design and/or process.	1. Abstract	0	1	2	3	4	Points
Report summarization       summarize main points of the report.       clear overview of 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.       Overview of design and/or process.	Limited to ½ page						
Unique ROV design and/or design processNo discussion of ROV design or process.Limited discussion of discussion of process with process.design and/or process with minimal focus onOverview of design and/or process with design and/or process with minimal focus onOverview of design and/or design and/or process with design and/orRobust design and/or process with design and/or	Report summarization	summarize main points		clear overview of			
unique traits.	•	discussion of ROV design	discussion of design and/or	design and/or process with minimal	design and/or process with	discussion of unique design and/or	

TOTAL **ABSTRACT** SCORE (<u>8 POINTS MAX</u>):

2. Task Overview	0	1	2	3	4	Points
Limited to ½ page	Exceeds page limit.		Within page limit.			
Overview of the competition tasks	No overview of competition tasks.	Limited overview of obstacle <u>or</u> mission course.	Good overview of obstacle <u>or</u> mission course.	Overview of tasks for both courses; may lack task detail.	Detailed discussion of all tasks for both 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.	
	•	TOTAL	TASK OVERVIE	W SCORE (10 F	POINTS MAX):	

	1	2	3	4	Points
Exceeds page limit.		Within page limit.			
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.	
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.	
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.	
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.	
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.	
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.		
	page limit.No overview of team approach to EDP.No discussion of design iterations.No drawings or graphics.No discussion of final design.No discussion of final design.No discussion of final design or approach novelty.Includes no engineering	page limit.Discussion focuses on reiterating published information.No discussion of design iterations.Discussion focuses on reiterating published information.No discussion of design iterations.Limited discussion of design iterations.No drawings or graphics.Minimal graphics that lacks context within report.No discussion of final design.Minimal discussion of final design.No discussion of discussion of final design.Limited discussion of final design.No discussion of discussion of discussion of design or approach novelty.Limited discussion of what makes the ROV design or approach unique.Includes no engineering terms.Includes less than 5 engineering terms.	page limit.limit.No overview of team approach to EDP.Discussion focuses on reiterating published information.Minimal discussion of team's incorporation of EDP.No discussion of design iterations.Limited discussion of design iterations.Basic discussion of design iterations.No discussion of design iterations.Limited discussion of design iterations.Basic discussion of design iterations.No drawings or graphics.Minimal graphics that lacks context within report.Includes graphic(s) with basic context within report.No discussion of final design.Minimal discussion of final design.Basic discussion of final design.No discussion of design or approach novelty.Limited discussion of what makes the ROV design or approach novelty.Basic discussion of design or approach novelty.Includes no engineering terms.Includes less than 5 engineering terms.Includes less than 5 engineering terms.	page limit.Iimit.Iimit.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.No discussion of design iterations.Limited discussion of design iterations.Basic discussion of design iterations.Good discussion approach to EDP.No discussion of design iterations.Limited discussion of design iterations.Basic discussion of design iterations.Good discussion and analysis of design iterations.No drawings or graphics.Minimal graphics that lacks context within report.Includes graphic(s) with basic context within report.Good discussion of final design.No discussion of final design.Minimal discussion of final design.Good discussion of final design features.Good discussion of final design features.No discussion of discussion of discussion of design or approach novelty.Limited discussion of discussion of design or approach novelty.Good discussion of discussion of design or approach novelty.No discussion of engineering terms.Limited discussion of discussion of discussion of design or approach novelty.Good discussion of design or approach novelty.No discussion of engineering terms.Includes less terms, not tuly embedded or does not add text that enhance the sectio	page limit.Imit.GoodNo 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.No discussion of design iterations.Limited discussion of design iterations.Basic discussion of design iterations.Good discussion approach of design iterations.Robust discussion and analysis of design iterations.No drawings or graphics.Minimal graphics that lacks context within report.Includes graphic(s) with basic context within report.Good discussion of discussion of final design features.High-quality graphics with labels that enhance text.No discussion of final design.Minimal discussion of final design features.Good discussion of final design features.High-quality graphics with labels that enhance text.No discussion of discussion of final design.Basic discussion of final design features.Good discussion of final design features.Robust discussion of final design features.No discussion of discussion of approach novelty.Limited discussion of discussion of discussion of discussion of mal design or approach novelty.Basic discussion of discussion of discussion of discussion of discussion of hasisBasic discussion of discussion of discussion of design or approach no

TOTAL **DESIGN APPROACH** SCORE (<u>25 POINTS MAX</u>):

4. Experimental Results	0	1	2	3	4	Points
Limited to 1 page	Exceeds page limit.		Within page limit.			
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.	
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.	
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.	

TOTAL **EXPERIMENTAL RESULTS** SCORE (<u>14 POINTS MAX</u>):

Limited to 1 pageExceeds page limit.Within page limit.Good reflection and basic analysis of the design process.Thoughtful reflection and basic analysis of the design process.Reflection on the design processNo 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.Next StepsNo discussion of next steps.Limited discussion of next steps.Basic discussion of next steps.Good overview of future plans for ROV and version and process.Robust overview of future plans for ROV and to reflect and	5. Reflection & Next Steps	0	1	2	3	4	Points
Reflection on the design processNo reflection on the design process.Limited 	Limited to 1 page						
Next StepsNo discussion of next steps.Limited discussion of next steps.Basic discussion of next steps.overview of future plans for ROVoverview of future plans for ROV		on the design	reflection on the design	reflection on the design	reflection and basic analysis of the design	reflection and analysis of the design	
and/or team.	Next Steps	discussion of	discussion of	discussion of	overview of future plans	overview of future plans	

6. Acknowledgements	0	1	2	3	4	Points
Acknowledgement of support	Not included in report.		Supporters recognized in report.			

TOTAL **ACKNOWLEDGEMENTS** SCORE (<u>2 POINTS MAX</u>):

7. References	0	1	2	3	4	Points
References follow APA format	Does not follow APA format.		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.		

TOTAL **REFERENCES** SCORE (<u>5 POINTS MAX</u>):

8. Budget	0	1	2	3	4	Points
Includes itemized budget	Section not included in report.		Section included in report.			

TOTAL **BUDGET** SCORE (<u>2 POINTS MAX</u>):

9. Fact Sheet	0	1	2	3	4	Points
Includes fact sheet	Section not included in report.		Submitted in approved 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.	

TOTAL FACT SHEET SCORE (6 POINTS MAX):

10. Writing Skills	0	1	2	3	4	Points
Organization	Organization severely impacts ability to follow the report.	Minimal organization with section headers.	Good organization of discussion within each section.			
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.	
Spelling and Grammar	Significant spelling or grammatical errors (5+)	Minimal spelling or grammatical errors (1-5).	No spelling or grammatical errors.			

TOTAL WRITING SKILLS SCORE (8 POINTS MAX):

11. Paper Format	0	-	-	-	10	Points
Follows all formatting guidelines:						
<ul> <li>5 pages max (excluding sections 6-7 and appendices)</li> </ul>						
- Page size: 8.5"x11"						
- Margins ≥ 0.8 in.	Does not				Meets all	
- Times New Roman 12pt	meet all				formatting	
- Single Spaced	formatting				guidelines	
<ul> <li>Footer with team name and page # on all pages</li> </ul>	guidelines.				(10 points).	
- Submitted in pdf format						
(Handwritten reports are allowed but must follow all guidelines above with the exception of specified font)						
	•	τοται				

#### TOTAL **PAPER FORMAT** SCORE (<u>10 POINTS MAX</u>):