

2017 MATE ROV COMPETITION PRODUCT PRESENTATION SCORE SHEET - RANGER AND EXPLORER

JUDGE NAME:

COMPETITION CLASS:

TEAM #:

COMPANY/SCHOOL NAME:

Category	Criteria	Scoring Requirements	Raw Score	Points Possible	Raw %	Weight	Category Score
			by category				
<b>Safety</b>				<b>20</b>		<b>10%</b>	
	<b>Content</b>						
		Presentation highlighted safety features and philosophy					
	<b>Safety procedures</b>						
		Described safety protocols and procedures for dealing with safety issues					
		Described the development and use of a safety checklist					
	<b>Safety measures</b>						
		Noted warning labels and safeguards on potentially hazardous parts					
		Described other vehicle-specific safety precautions					
<b>Team Presentation</b>				<b>60</b>		<b>25%</b>	
	<b>Preparation</b>						
		All team members participated in the presentation					
		Team was well prepared for the presentation					
	<b>Delivery</b>						
		Presentation was dynamic, clear, and informative					
		"Sold" judges on purchasing the product					
	<b>Insight/Creativity</b>						
		Clearly described technical and organizational challenges faced during design and implementation					
		Innovative, thoughtful solutions to problems faced					
	<b>Understanding</b>						
		Demonstrated an understanding of their ROV system design, specifications, and functions					
		Described key technical specifications of major components (COTS or built)					
	<b>Resources/Budget</b>						
		Described process for developing and adhering to budget					
		Acknowledgement of donors of funds, materials, equipment					
		Made sound and informed strategic choices about where to invest time and resources in technical effort					
	<b>Teamwork</b>						
		Described how the team evolved to improve capabilities and meet challenges					
		Described influences from team members, past (if applicable) and present					
		Team seems cohesive, inclusive, and supportive					
		Team demonstrates self-teaching/mentoring among team members					

Category	Criteria	Scoring Requirements	Raw Score	Points Possible	Raw %	Weight	Category Score	Comments
<b>Theme/Tasks</b>				<b>16</b>		<b>10%</b>		
	<b>Content</b>							
		Presentation clearly linked to the theme and mission tasks The science or techniques behind the tasks is discussed						
	<b>Understanding</b>							
		Demonstrated detailed understanding of the science/industry mission Demonstrated an understanding of how their ROV's systems, specifications, and functions were designed to perform to the mission tasks						
<b>Overall Design/Workmanship</b>				<b>20</b>		<b>10%</b>		
	<b>Content</b>							
		Overall design is team's own, well-conceived, and implemented (both functionally and aesthetically) Implementation is robust and shows skillful execution Design is modular and servicable, i.e. readily field repairable Demonstrates thought to marketability/usability by others Discussed the extent to which the vehicle was tested prior to the event						
<b>Build vs. Buy, New vs. Used</b>				<b>16</b>		<b>20%</b>		
	<b>Content</b>							
		Provided justifications for build vs. buy decisions Provided justifications for new vs. re-used decisions						
	<b>Understanding</b>							
		Team demonstrated thorough understanding of principle of operation of COTS or home-built sensors of other components Team demonstrated thorough understanding of the principle of operation or new or re-used sensors or other components						
<b>System Design</b>				<b>124</b>		<b>25%</b>		
	<b>Engineering Design Rationale</b>							
		Overall vehicle design presented in clear and logical manner Demonstrates step-by-step planning and design process Functional design decisions discussed and sensible Individual design choices demonstrate thoughtful and balanced trade-offs						
	<b>Originality</b>							
		Team made innovations or modifications resulting in higher functionality at reduced costs Innovation demonstrated in vehicle design, tools, or other features						
	<b>Describes problem solving process</b>							
		Thoroughly describes how the company brainstormed ideas Evaluated ideas ideas against competing alternatives Used rational process (data, trade study) to evaluate alternatives						

Category	Criteria	Scoring Requirements	Raw Score	Points Possible	Raw %	Weight	Category Score	Comments
	<b>Systems approach</b>							
		Team demonstrates a balanced systems approach to the design: e.g. good integration between vehicle and sensors, wholistic approach to vehicle systems System reflects significant and thoughtful design, i.e., is not simply an integration of mostly purchased parts						
	<b>Material and component decisions</b>							
		Discussed process and factors for making material, component, and other choices Provided sound reasoning for their choices						
	<b>Vehicle structure</b>							
		Described trade-offs and rationale for vehicle cost, size, and weight						
	<b>Vehicle systems</b>							
		Described logically and clearly how components and materials were selected to perform specific tasks in a cost effective way Described how the design evolved to meet the competition requirements						
	<b>Control/Electrical system</b>							
		Control scheme as designed by the team is sensible, efficient, and logical Provides good description of control system design (to include code, if applicable) Provides good description of electronic design and cabling Demonstrates complete understanding of control system functions and features (electrical and code, if applicable) All team members understand control system design Demonstrated understanding of tether design and requirements Developed and presented a tether management protocol						
	<b>Propulsion</b>							
		Sensible rationale provided for number, type, and placement of thrusters Made reasonable trade-offs to balance power consumption, cost, performance and mission requirements						
	<b>Buoyancy and Ballast</b>							
		Demonstrated understanding of bouyancy and ballasting principles Sensible rationale for the type of buoyancy used						

Category	Criteria	Scoring Requirements	Raw Score	Points Possible	Raw %	Weight	Category Score	Comments
	<b>Payload and Tools</b>	<p>Sensible rationale provided for number, type, and placement of cameras</p> <p>Payload tool designs meet functional and mission requirements</p> <p>Sensors used are appropriate for vehicle operation and tasks</p> <p>Demonstrated a complete understanding of theory and design of sensors/instrumentation</p>						
				<b>236</b>		<b>100%</b>		<b>Base Score</b>
			Raw Score	Max Points (cat)	Total % (check:100)			
						Weight		
	<b>Discretionary Points</b>		<b>0-4 pts each</b>	<b>12</b>		<b>1</b>		<b>Discretionary points</b>
		<p>Exceptional design and innovation demonstrated in vehicle design, tools, or other feature</p> <p>Team developed exceptional original software or made exceptional adaptation of software to create a unique solution</p> <p>Team demonstrated remarkable effort to design and manufacture every component of the vehicle</p>						
	<b>Deductions</b>		<b>0-4 pts each</b>	<b>12</b>		<b>1</b>		<b>Deduction points</b>
		<p>Significant interference by coaches, mentors, parents providing assistance during presentation and/or design process (with exception of language barriers)</p> <p>Significant overuse of commercial components without adequate justification</p> <p>Significant overuse of re-used components without adequate justification</p>						
							<b>Final Score</b>	

Scoring Rubric (applies to all score items)	Outcome	Criteria	Score
	<b>Missing</b>	Not included, can't evaluate	<b>0</b>
	<b>Needs work</b>	Effort made, meets some key requirements. Understanding or treatment of key requirements needs more depth	<b>1</b>
	<b>Partially meets requirement</b>	Response demonstrates understanding and addresses most key requirements	<b>2</b>
	<b>Meets requirement</b>	Response demonstrates thorough understanding and addresses all key requirements	<b>3</b>
	<b>Exceeds requirement</b>	Response extends beyond key requirements, demonstrating exceptional depth and breadth of understanding	<b>4</b>

Discretionary Points Rubric	Degree	Points
<b>Criteria:</b> - Novelty - Depth of Understanding - Depth of Analysis	<b>None</b>	<b>0</b>
	<b>Minor</b>	<b>1</b>
	<b>Fair</b>	<b>2</b>
	<b>Good</b>	<b>3</b>
	<b>Extraordinary</b>	<b>4</b>

Deductions Rubric	Degree	Deduction
<b>Criteria:</b> - Extent to which team relied on outside help, existing work and/or purchased components and services	<b>None</b>	<b>0</b>
	<b>Minor</b>	<b>1</b>
	<b>Fair</b>	<b>2</b>
	<b>Medium</b>	<b>3</b>
	<b>Extreme</b>	<b>4</b>

SCORE\_SCALE  
RUBRIC\_SCALE

100  
4