

2017 MATE ROV COMPETITION TECHNICAL DOCUMENTATION SCORE SHEET - SCOUT AND NAVIGATOR

JUDGE NAME:

COMPETITION CLASS:

TEAM #:

COMPANY/SCHOOL NAME:

Category	Criteria	Scoring Requirements	Raw Score	Points Possible	Raw %	Weight	Category Score	Comments
			by category					
Overall Presentation				56		20%		
	Document specifications							
	All 4 requirements met = 4 points 3 requirements met = 3 points 2 requirements met = 2 points 1 requirement met = 1 point	Document meets requirements: length no more than 10 pages, font size of at least 12 points, uses Times New Roman, Arial, or Calibri font, all measurements are in SI units (except things traditionally specified in other units, e.g. PVC diameter)						
	Use same scale as above	Title page meets content requirements: company name, organization/school name and location (city, state), team members and their roles, and mentor name(s)						
	Use of images	Abstract provides clear, concise summary of work in 150 words or less						
		Photo of complete vehicle is included						
		Effective use of photos and sketches to capture the vehicle's design features						
		Photos/sketches accompanied by appropriate captions						
		Sketches use sensible labeling of signals, dimensions and components						
	Understanding							
		Demonstrates clear understanding of the technical and scientific concepts and their relationship to vehicle design and implementation						
		Document clearly describes the vehicle design and building process						
	Document Design							
		Thorough attention to grammar and spelling						
		Document is thoughtfully prepared, with thorough attention paid to messaging strategy and aesthetic presentation						
		Document presents a professional view of the company						
	Acknowledgements and References							
		Document provides a properly documented list of references - books, journals, web sites, etc. used as sources; documented contributions of companies, individuals who contributed funds, equipment, and/or technical/moral support						
		Document provides adequate acknowledgement of contributions of companies and individuals that contributed funds, equipment, and/or other support to the team						
Teamwork				16		10%		
	Company Effort							
		Document clearly demonstrates that the vehicle and report were team efforts, not done by mentors or working professionals						
	Project Management							
		Team developed and maintained a schedule to aid in building the vehicle						
		Describes the organizational and planning processes and activities used						
		Describes how resources, procedures, and protocols were managed to meet mission objectives and solve day to day operational problems						

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Design Rationale				40		30%		
	Content	Describes a logical, step-by-step planning and design process Describes how design ideas were originated, evaluated, and selected The science or techniques behind the tasks is discussed Provides clear description and sensible rationale for design choices related to cost, size, and weight						
	Understanding	Demonstrated a detailed understanding of the science/industry mission Provides clear description and sensible rationale relating designs choices and specifications to meet mission task requirements						
	Build vs. buy, new vs. used	Decision process for use of new vs. re-used components is clearly articulated and sensibly rationalized Decision process for use of home-built vs. commercial components is clearly articulated and sensibly rationalized Demonstrated a thorough understanding of the new or re-used components principle of operation Demonstrated a thorough understanding of the home-built or commercial components principle of operation						
SID				8		5%		
	System Integration Diagrams	All 4 requirements met = 4 points 3 requirements met = 3 points 2 requirements met = 2 points 1 requirement met = 1 point	SID meets requirements: made using CAD, distinguishes between surface controls and the ROV, includes fuse/circuit breaker and shows its location, and uses ANSI, NEMA or IEC recognized electrical, hydraulic, and/or pneumatic symbols SID has appropriate level of detail: is a system level/connection diagram (not a board or component-level schematic)					
Safety				12		10%		
	Content	Document highlights safety features and philosophy Document describes how the vehicle is designed and built to meet safety requirements						
	Safety procedures	Document describes steps taken to identify and address safety concerns						
Critical Analysis*				28		10%		
*aka designs tested, pitfalls encountered, lessons learned	Testing and Troubleshooting	Describes how (complete) vehicle was tested Describes troubleshooting strategies and techniques used						
	Challenges	Describes at least one significant technical challenge encountered, and the process used to resolve it Describes at least one significant interpersonal or organizational challenge encountered, and the process used to resolve it						
	Lessons Learned	Describes technical lessons learned Describes interpersonal or management lessons learned Describes development of skills						

Category	Criteria	Scoring Requirements	Raw Score	Points Possible	Raw %	Weight	Category Score	Comments
Future Improvements				4		5%		
	Reflection	Provides a thoughtful and logical discussion of at least one potential improvement to design, design process, or project management						
Accounting				12		10%		
	Budget	Thorough and accurate description of budget planning and following A clear distinction is made between items purchased, re-used, and donated All donations (items, services, and time) are acknowledged						
				176		100%		Base Score
			Raw Score	Max Points (cat)		Total % (check:100)		
						Weight		
Discretionary Points				8		1		Discretionary points
		Document describes exceptional design of vehicle, sensors, instruments, software, tools or other features Documents describes remarkable effort to design and manufacture every component of the vehicle						
Deductions				8		1		Deduction points
		Evidence that the work was performed by coaches, mentors, parents, or other non-team members Significant overuse of commercial or reused components without adequate justification						
								Final Score

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

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

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

SCORE_SCALE
RUBRIC_SCALE

50
4