2024 MATE ROV COMPETITION TECHNICAL DOCUMENTATION SCORING REQUIREMENTS - SCOUT

Overall Report
Max Points: 48   Weight: 15%

Document Specifications

Is our report 10 pages or less? Did we use a font size of at least 12 points? Did we use Times New Roman, Arial, or Calibri font? Did we list all measurements in SI units (except things traditionally specified in other units, e.g. PVC diameter)?

Does our title page include the following: company name, organization/school name and location (city, state), team members and their roles, and mentor name(s)?

> This scale applies only to first two questions. See Rubric for the remainder of the questions.
>
> All 4 requirements met = 4 points
> 3 requirements met = 3 points
> 2 requirements met = 2 points
> 1 requirement met = 1 point

Did we include an abstract that clearly summarizes our work in 150 words or less?

Use of Images and Data

Did we include a photo of our completed vehicle?

Did we use photos and/or sketches to show our ROV's design features?

Did we include a descriptive caption with each photo and/or sketch?

Did we label the parts of our ROV, including any special or safety features, and include dimensions where appropriate?

Document Design

Did we check for spelling, punctuation, and grammar mistakes?

Did we think through how to communicate information to the judges, paying attention to how the words flow and making sure to include the major

Does our report describe our team and ROV in a way that makes us look professional?

Acknowledgements and References

Did we include a list of references - books, journals, web sites, etc. - that we used as sources? Did we list contributions of money, materials, and equipment?

Did we thank the people and organizations who gave us money, materials, equipment, and cheered us on?

Teamwork
Max Points: 12   Weight: 10%

Project Management

Did we describe how we developed and kept to a schedule?

Did we explain how we organized our team meetings and planned out our design and building activities?

Did we explain how we managed money, materials, and people to stay on schedule and solve day to day (meeting to meeting) problems?

Design Rationale
This section should include a detailed description of the vehicle, tools, and other subsystems
Max Points: 48   Weight: 40%

Engineering Design Rationale

Did we convince the judges that we followed a logical, step-by-step design and building process?

Did we describe how we came up with ideas, compared or tested ideas, then picked the one(s) that we used?

Did we describe any trade-offs that we made (e.g. homemade PVC gripper instead of a store-bought one) to keep our ROV at a certain cost or size?

Innovation

Did we describe any innovative design ideas, tools, or other feature we came up with?

Problem Solving

Did we described how we brainstormed ideas and used information and data to compare them?

Vehicle Systems

Did we describe how we selected our building materials?

Did we describe how our ROV's design and tools evolved to meet the mission specs?

Did we explain how we decided on the number and placement of thrusters?

Did we describe our ROV's buoyancy in a way that convinces the judges that we understand the science behind buoyancy?

Payload and Tools

Did we explain how our ROV's tools were designed to meet the mission specifications?

Build vs. Buy, New vs. Used

Did we explain why we chose to buy certain ROV parts and/or build others?

Did we explain why we chose to re-use certain old parts and/or build others?

System Integration Diagram (SID)
Max Points: 1   Weight: 5%

System Integration Diagrams

SID was included with the report

Note: Pre-competition safety inspectors will review and score in greater detail

Safety
Max Points: 8   Weight: 10%

Content

Did we describe how our ROV was designed and built to meet the competition's safety requirements (i.e., shrouds on motors)?

Safety Procedures

Did we describe safety protocols (e.g. safety checklist) and how we handled any safety issues (e.g. cut or other injury)?

Critical Analysis
Max Points: 8   Weight: 10%

Testing and Troubleshooting

Did we describe how we tested and practiced with our ROV before the competition?

Did we describe how we approached troubleshooting?

Accounting
Max Points: 12   Weight: 10%

Budget

Did we include how much our ROV cost and how we paid for it? [Cost provided in USD]

Did we list what parts were purchased, what parts were re-used, and what parts were donated?

Did we list the individuals and/or organizations who donated the parts?

Discretionary Points
Max Points: 8   Weight: 100%

Is there something really unique about our ROV (design, tool, or other feature) that we highlighted in our document?

Other (Explanation/example is required in comments)

Deductions
Min Points: -8   Weight: 100%

Do the judges think that our teachers, mentors, and parents built most of the vehicle and wrote our report for us?

Did we use a lot of pre-built parts or parts from previous teams without explaining why?

Final Score
Max Points: 50 + Disretionary & Deductions

SCORING RUBRIC - ALL QUESTIONS (Except Discretionary & Deductions)

Missing: Not included, can't evaluate	0
Needs Work: Effort made, meets some key requirements. Understanding or treatment of key requirements needs more depth. Judges had to question deeply to find answers.	1
Partially Meets Requirement: Response demonstrates understanding and addresses most key requirements. Simple prodding from judges encouraged team to answer.	2
Meets Requirement: Response demonstrates thorough understanding and addresses all key requirements. Team addressed topic without prompting.	3
Exceeds Requirement: Response extends beyond key requirements, demonstrating exceptional depth and breadth of understanding	4

SCORING RUBRIC - DISCRETIONARY POINTS
Novelty, Depth of Understanding, Depth of Analysis, Effectiveness (functions as intended), Quality of Implementation

None	0
Minor	1
Fair	2
Good	3
Extraordinary	4

SCORING RUBRIC - DEDUCTIONS
Extent to which team relied on outside help, existing work and/or purchased components and services

None	0
Minor	1
Fair	2
Medium	3
Extreme	4