

Engineering & Communication: Technical Report

School name and # AS IT APPEARS ON THE OFFICIAL LIST:

Judge's name:

1 0 = Yes (1) or No (0) 3 2 1 0 = 3: Exceptional, 2: Excellent, 1: Good, 0: Poor or missing

SCORE

Overall Presentation

12 pts max

Report is 20 pages or less	1 0
Measurements are in SI units (exceptions include 1/2-inch PVC, etc.)	1 0
Report is well thought out, logically organized, and concise <i>Note: The report should follow a logical flow and not necessary the order presented in the specs, where budget comes before the rationale.</i>	2 1 0
Report is "professional" and well written (e.g. attention to spelling, grammar, sentence structure)	2 1 0
Includes a table of contents	1 0
Report clearly describes how the vehicle was designed to accomplish the mission tasks	2 1 0
Report demonstrates an understanding of the technical and scientific concepts behind designing and building the vehicle	2 1 0
Includes references	1 0

Title Page Contains

3 pts max

Includes all elements as specified in the guidelines <i>(Company name; school, club, or organization's name, city, and state; lists members of the company and their role; name of instructor/mentor)</i>	2 1 0
Presents a professional view of the company	1 0

Abstract

3 pts max

Is 250 words or less	1 0
Concise and clear summary of the company's work	2 1 0

Photos of ROV

4 pts max

Complete, intact vehicle photo	1 0
Photo captions or descriptions accompany photos	1 0
A mechanical drawing or sketch is included (may be of a sub-system) <i>Note: The intent is to deem excellence if the drawing/sketch is particularly well done</i>	2 1 0

Budget/Expense Sheet

6 pts max

Math accurate	2 1 0
Detailed accounting of funds, e.g. incomes and expenditures properly accounted	2 1 0
Notes what, if any, components/systems were reused from "last year" <i>Note: If none were or a description is not included, score as a 1.</i>	1 0
Donations listed, including fair market value	1 0

Electrical Schematic

5 pts max

Neatly hand-drawn or created using CAD	2 1 0
Discloses presence of fuse/circuit breaker	1 0
Clearly represents the electrical system	2 1 0

Design Rationale

12 pts max

Presented in a clear and logical manner	2 1 0
Demonstrates step-by-step planning and design process	2 1 0
Demonstrates acquisition and application of technical skills	2 1 0
Documents and discusses how the ROV was designed and built to accomplish the mission tasks	4 3 2 1 0
A flowchart describes the software flow OR rationale is provided describing why a hardware only approach was selected	2 1 0

School name and # AS IT APPEARS ON THE OFFICIAL LIST:**Judge's name:****New in 2013! Safety****7 pts max**

Includes a safety section

1 0

Describes company safety philosophy and practices during design and development of ROV

2 1 0

Describes specific safety features of vehicle

2 1 0

Describes safety precautions necessary while handling/operating the vehicle

1 0

Company shares a copy (preferably as an appendix) of its own safety checklist that is organized and well-thought through

1 0

*Note: The checklist is NOT the safety inspection checklist provided by the competition. If the competition's is used, score as a 0.***Vehicle Systems****8 pts max**

Company demonstrates understanding of vehicle systems and operations

2 1 0

Original vs. commercial design*Are the majority of the components designed & built by the company?*

YES

3

OR

NO. *Is a valid justification and a technical description of the functionality provided for each commercial component?*

3 2 1 0

*Is it consistent with information presented in the budget?*New vs. re-used components from "last year"*Are the majority of the components new this year?*

YES

3

OR

NO. *Were the majority of the re-used components designed & built by the company?*YES. *Is a valid justification and a technical description of the functionality provided for each re-used component?*

3 2 1 0

Is it consistent with information presented in the budget?

OR

NO

0

Challenges**4 pts max**

Describe at least one challenge faced

2 1 0

Note: Two points if both a technical and a non-technical challenge are described

Method used to overcome the challenge

2 1 0

*Note: Two points if both a technical and a non-technical method are described***Troubleshooting Techniques****6 pts max**

Explains a troubleshooting technique(s)

2 1 0

What was used to identify and solve the problem

2 1 0

Describes any testing done on components or vehicle

2 1 0

*Note: Two points if whole vehicle was tested; one point for component testing only***Payload Description****2 pts max**

Design and function of payload tools is clearly described

2 1 0

Future Improvement**2 pts max**

Thoughtful and logical discussion for one improvement

2 1 0

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Lessons Learned

4 pts max

Lesson learned or skill gained relating to the process – technical

2 1 0

Lesson learned or skill gained relating to the process – interpersonal

2 1 0

Reflections

2 pts max

Personal or professional accomplishments from competition participation presented as a team or as individual team members

2 1 0

Teamwork

7 pts max

Company demonstrates that the vehicle (and the report) was a company effort

2 1 0

Company demonstrates that its members, and not mentors or working

2 1 0

professionals, designed and built vehicle, particularly electrical and software

2 1 0

Company developed specific assignments to design/build the vehicle

1 0

Company developed a schedule to aid in building the vehicle

Acknowledgements

3 pts max

Companies, individuals who contributed funds, equipment, and/or technical/moral support are acknowledged

2 1 0

Recognizes donations of funds, supplies and time

1 0 -1

Technical Report Score:

Discretionary Points

3 pts max

Bonus points for extraordinary work

3 2 1

Deductions

-15 pts max

Company mentions that work was done by commercial companies and/or instructors or mentors and not able to provide a valid justification why

0 -3 -5

Lacks software block diagram or flow chart, if applicable

-2

Overuse of commercial components without adequate justification

0 -3 -5

Over use of appendices

-3

Technical Report Total Score:

Comments: