

Technical Report

Learning to write a technical report is a key skill in the engineering and science world. The technical report we are expecting will follow the outline below. Refer back to your engineering journal to help you complete it.

The **Technical Design Report** consists of seven mandatory sections and two mandatory appendices. Additional sections may be included; however, **all reports must be limited to 5 pages** (excluding References, Acknowledgements, and Appendices). Sections and appendices must appear in the order listed below. **Reports must be written in English, typed, and submitted in PDF format.**

Please refer to the Scoring Rubric for more information about how each section of the Technical Design Report will be scored.

Technical Design Report

Section 1. Abstract (1/2 page). A well-written abstract should concisely explain the key points or essence of your paper and quickly explain to the reader what the paper is about.

Section 2. Task Overview (1/2 page). This section should include an overview of the task(s) your vehicle will attempt and should discuss the characteristics and features of the tasks that affected the final design. Avoid directly quoting course descriptions or problem statements for real-world applications and instead use your own words to describe what your vehicle will/would do within the application.

Section 3. Design Approach (2 pages). Given the tasks described in the previous section, describe your team's strategy and approach to developing a novel electric vehicle design. Novelty may occur at various levels of the design and build process including specific components, collections of components, or even team approaches to the process. Focus attention on the creative aspects of your system and how your team conceived of, refined, and implemented these ideas. Describe your experience in making design decisions and how prospective ideas were considered among the team. Include engineering and scientific terms and concepts to demonstrate the team's understanding of the challenges of constructing and operating an electric vehicle.

Section 4. Experimental Results (1 page). This section should describe various tests accomplished in-practice and/or in simulation. What were your results? How did these tests impact your team's subsequent design(s)? Include images, charts, and figures to demonstrate your results.

Section 5. Reflection & Next Steps (1 page). Reflect on this year's experience. What did you learn? Were there aspects of the project that you particularly enjoyed or that challenged you? How do you think that your new knowledge or experience will assist you in future endeavours? Include a discussion of next steps for the team and/or the team's vehicle.

Section 6. Acknowledgements (no page limit) Participating in the competition involves identifying resources and support beyond the efforts of individual team members. This support can take many forms, such as technical advice, labour, equipment, facilities, and monetary contributions. Acknowledging those who have supported your efforts is important.

Section 7. References (no page limit). As with any technical publication, original ideas and content not generated by the paper's authors should be properly cited. While there are many citation styles, the American Psychological Association (APA) style guide should be used. Use in-text citations, where appropriate.

Task 6: Technical Report

Rubric Points → Design Element ↓	Exceptional 8	Excellent 6	Good 4	Fair 2	Needs Improvement 0
Paper Format Page Size A4 Single Spaced Margins >0.8 Footer with team name and page # on all pages	Meets all formatting guidelines		Meets most of the formatting guidelines		Does not meet all the formatting guidelines
Abstract: Limited to ½ page			Within page limit		Exceeds page limit.
Abstract Report summarization			Includes a clear overview of the report.		Does not summarize main points of the report.
Unique Vehicle Design and/or Design Process	Robust discussions of unique design and process	Detailed discussion or unique design or process	Overview of design and/or process with some focus on unique traits		No discussion of ROV design or process
Task overview: limited to ½ page			Within page limit		Exceeds page limit.
Overview of the competition tasks	Detailed discussion of all tasks	Good overview of all tasks	Good overview of at least 2 tasks	Good overview of one of the tasks	No overview of competition tasks.
Design Approach Justification	Robust, detailed discussion of design justification		Basic discussion of how tasks impacted design.		No discussion of task influence on design.
Design Approach: Limited to 2 pages			Within page limit		Exceeds page limit.
Teams approach to engineering design process (EDP)	Robust discussion of team's strategy to EDP.	Good discussion of team's approach to EDP.		Little discussion of team approach to EDP	No overview of team approach to EDP.
Design iterations	Robust discussion & analysis of design iterations.	Good discussion and analysis of design iterations.		Basic discussion of design iterations.	No discussion of design iterations.
Conceptual drawings and/or graphics	High-quality graphics with labels that enhance text	Good graphic(s) with context within report.		Includes graphic(s) within report.	No drawings or graphics.
Final design	Robust discussion of final design features/decisions.	Good discussion of final design features/decisions		Basic discussion of final design features	No discussion of final design
Novelty of vehicle design or approach	Strong discussion & analysis of vehicle design & approach novelty.	Good discussion of design or approach novelty.		Basic discussion of design or approach novelty	No discussion of design or approach novelty.

Scientific and engineering terms	Includes 5+ terms embedded in text & enhancing the section.	Includes 5+ terms; not fully embedded or lacking context	Includes 2-4 engineering terms.	Includes 1-2 engineering terms.	Includes no engineering terms
Experimental Results: Limited to 1 page			Within page limit		Exceeds page limit.
In the field and/or simulated testing overview	Exceptional analysis of testing models utilized.	Good discussion & analysis of testing conducted.	Basic overview & discussion of testing conducted.	Testing mentioned	No discussion of testing.
Impact of testing on subsequent designs	Robust analysis of testing impact on multiple design iterations.	Good discussion & analysis of testing impact on multiple design iterations	Basic discussion of how testing impacted multiple designs.	Basic discussion of how testing impacted one design.	No discussion of testing impact on design.
Test Results	Robust test results analysis supported by graphs & charts.	Good test results analysis supported by graphs and/or charts	Basic discussion of test results.	Test results shown	No test results included.
Reflection: limited to 1 page			Within page limit		Exceeds page limit.
Reflection on the design process	Thoughtful design process reflection & analysis.	Good reflection and basic design process analysis.	Basic reflection on the design process.		No reflection on the design process
Next steps	Robust overview of future plans for vehicle and team.	Good overview of future plans for vehicle and/or team.	Basic discussion of next steps for vehicle/team		No discussion of next steps.
Acknowledgement of Support			Supporters recognized.		Support not included in report.
References follow APA format			Follows APA format.		Does not follow APA format.
Includes references to support report		4+ references that are cited in the report text.	1-3 references that are cited in the report text.		No references or citations.
Includes Budget			Submitted in approved format.		Section not included
Writing skills: Organisation		Good organization of discussion within each section.	Minimal organization with section headers.		Organization severely impacts ability to follow the report.
Writing skills: Readability		Concise and cohesive report that is easy to understand.	Report is well written and easy to follow.		Report is inconsistent and difficult to follow.
Writing skills: Spelling and Grammar		No spelling/grammatical errors	Minimal spelling or grammatical errors (1-5)		Significant spelling or grammatical errors (5+)