THIS IS THE TITLE OF THE RESEARCH PROJECT

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ABSTRACT

The final report submitted by each individual student will consist of 20-pages detailing the scope of the research project in the form of a JOURNAL PAPER.
This document provides the template for the FINAL REPORT.

Keywords: Self-healing, Composite, Biomimetics, Mechanical testing, Impact

1 INTRODUCTION

The FINAL REPORT must be written in English and have a **maximum** length of 20 pages (including Appendices) in A4 ISO format (29.7 cm x 21 cm). The text should be written single-spaced, justified, using 11pt Times New Roman in one column. Margins are 3 cm on the top and 2.5 cm on the bottom, and 2.5 cm on the left and right (printing box of 24.2 cm x 16 cm). Leave one 11pt space between paragraphs. There is no indentation at the beginning of a paragraph. Title of the research should be written centred, in 11pt boldface Times New Roman, all capital letters. Authors name should include first name, middle initial (if desired) and surname, and be written centred, in 11pt Times New Roman. The header of the second page should contain the authors name (first name, middle initial if desired and surname), and be written centred, in 9pt Times New Roman.

2 METHODOLOGY

The structure of the report should contain the following in order:

- Title
- Author names and affiliation
- Abstract of no more than 200 words
- Key index words or phrases (35 choices)
- Introduction
- Methodology
- Results or findings, divided into sections and described by short headings
- Discussion
- Conclusion and recommendations
- References (of all articles cited in the text)
- Appendices (if required)

Further examples of the typical content captured within subject specific Journal Papers can be found at:

- Aerodynamics
  1. International Journal for Numerical Methods in Engineering
  2. Journal of Aircraft
  3. AIAA Journal

    4. Journal of Propulsion and Power
- Dynamics and Control
    1. AIAA Journal of Guidance Control and Dynamics
    2. Mechanical Systems and Signal Processing (MMSP)
    3. Journal of Sound and Vibration (JSV)
- Structures
    1. Composites A
    2. Composite Structures
    3. Smart Materials and Structures (SMS)

A technical **ABSTRACT** of maximum 200 words should be written centred, in 11pt Times New Roman italics. A concise and factual abstract is required, outlining in a single paragraph the aims, scope and conclusions of the paper. In a minute or less a reader can learn the rationale behind the study, general approach to the problem, pertinent results, and important conclusions or new questions. Remember, an abstract is often presented separately from the article, so it must be able to stand alone. For this reason, References should be avoided, but if essential, then cite the author(s) and year(s). Also, non-standard or uncommon abbreviations should be avoided, but if essential they must be defined at their first mention in the abstract itself. Leave one 11pt space after the abstract.

A maximum of five keywords (beginning with **Keywords**: boldfaced) should be added after the abstract, separated by a comma, and written centred, in 11 pt Times New Roman, a capital being used for the first letter of each keyword. Leave one 11pt space after title, author(s), affiliation(s) and keywords.

HEADINGS. Your article should be structured into sections. Normally two levels of heading are used as follows:

Section heading:

3 DESIGN OF SELF-HEALING LAMINATES

All capital letters, bold, centred. In LaTeX, use `\section`

Section subheading:

3.1 Vasculature Integration

Capitalize first letter of main words, left justified. In LaTeX, use `\subsection`

Most journal-style scientific papers have the main body of the report subdivided into the following sections: Introduction, Methodology, Results, Discussion, Conclusion and Recommendations/Future Work and Acknowledgments, which parallel the project process.

The main body of the technical report should commence with the **INTRODUCTION** centred, in 11 pt boldface Times New Roman. Leave one 11pt space after this title. The purpose of an introduction is to acquaint the reader with the rationale behind the work, with the intention of defending it. It places your work in a theoretical context, and enables the reader to understand and appreciate your objectives.

The function of the Introduction is to:

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Table 1: Report sections

Research Process	Sections of Journal Paper
What did I do in a nutshell?	Abstract
What is the problem and whose work did I refer to?	Introduction & Literature Review
How did I solve the problem?	Methodology
What did I find out?	Results
What does it mean?	Discussion, Conclusions, Future Work
Who helped me out?	Acknowledgments(optional)
Extra Information	Appendices(optional)

- Establish the context of the work being reported. This is accomplished by discussing the relevant primary research literature (with citations) and summarizing our current understanding of the problem you are investigating;
- State the purpose of the work in the form of the hypothesis, question, or problem you investigated; and,
- Briefly explain your rationale and approach and, whenever possible, the possible outcomes your study can reveal.

Quite literally, the Introduction and/or Literature Review must answer the questions, "What was I studying? Why was it an important question? What did we know about it before I did this study? How will this study advance our knowledge?"

The function of the RESULTS section is to objectively present your key results, without interpretation, in an orderly and logical sequence using both illustrative materials (Tables and Figures) and text. Summaries of the statistical analyses may appear either in the text (usually parenthetically) or in the relevant Tables or Figures (in the legend or as footnotes to the Table or Figure). The text of the Results section follows this sequence and highlights the answers to the questions/hypotheses you investigated. Important negative results should be reported, too.

Any equations should be centred and numbered in an increasing order at the end of the line. Use 11pt for the symbols, letters and numbers in the equations. Leave one 11pt space above and below an equation to separate it from the surrounding text. There is no space between two equations. An example for a multi-line equation is given hereafter.

$$\boldsymbol{Kx} = \lambda \boldsymbol{Mx}$$
$$\lambda = \omega^2 \tag{1}$$

All measurements and data should be given in SI units, or if SI units do not exist, in an internationally accepted unit. If you use any symbol or unit that may not be generally recognized, please include an explanatory footnote the first time it is used, to help the referees, editors and readers. It is also helpful to identify Greek symbols by name in the margin the first time they appear. Abbreviations and acronyms should only be used for unwieldy terms and names which occur frequently in the manuscript. Abbreviations should be used consistently throughout the text, and must be clearly defined in full on first use. If you use several symbol, a list of definitions (not necessarily for publication) will help the editor. Journal style for letter symbols is as follows: variables, italic type (indicated by underlining); constants, roman type; matrices and vectors, bold type (indicated by wavy underlining).

Figures and Tables should be centred, numbered consecutively and captioned within the main body of the report. Leave a 11pt space between figure or table and corresponding caption. The
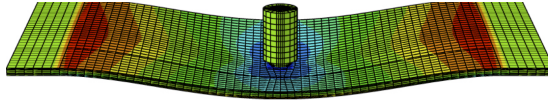
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Figure 1: This is the example of a figure.

Table 2: This is the example of a table.

Engineering constant		Identification	Homogenized model
E_1	[GPa]	21.7	25
E_2	[GPa]	20.3	25
ν_{12}		0.12	0.064
G_{12}	[GPa]	1.55	2.7
$\tan\delta(E_1)$		0.0051	
$\tan\delta(E_2)$		0.0062	
$\tan\delta(G_{12})$		0.0098	

caption should be written centred, in 11pt Times New Roman, with upper and lower case letters. Two 11pt spaces should separate the upper part of the figure or table and the bottom of the caption from the surrounding text. Examples of a figure (Figure 1) and a table (Table 2) are given below.

IMPORTANT: You must clearly distinguish material that would normally be included in a Journal Paper article from any raw data or other appendix material that would not be published. Summarize your findings in text and illustrate them, if appropriate, with figures and tables.

- In text, describe each of your results, pointing the reader to observations that are most relevant.
- Provide a context, such as by describing the question that was addressed by making a particular observation.
- Describe results of control experiments and include observations that are not presented in a formal figure or table, if appropriate.
- Analyze your data, then prepare the analyzed (converted) data in the form of a figure (graph), table, or in text form.

Organize the Discussion to address each of the experiments or studies for which you presented results; discuss each in the same sequence as presented in the Results, providing your interpretation of what they mean in the larger context of the problem. Do not waste entire sentences restating your results.

You will necessarily make reference to the findings of others in order to support your interpretations. Use subheadings, if need be, to help organize your presentation. Be wary of mistaking the reiteration of a result for an interpretation, and make sure that no new results are presented here that rightly belong in the results.

The CONCLUSION section of the journal paper draws together the main issues. It should be expressed clearly and should not present any new information. You may wish to list your recommendations in separate section or include them with the conclusions.

The list of references (if any) should be placed at the end of the Technical Report and entitled with the word REFERENCES centred, in 11 pt boldface Times New Roman. References should be quoted in the text by numbers (e.g. [1] or [2,3])[1] and grouped together in the list of references

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[1] In LaTeX, please use `\cite`. Handily, this also serves as a footnote example.

in numerical order. For the style, please consult the references shown hereafter in a list of references including a journal paper [1], a book [2] and a conference proceeding [3].

REFERENCES

[1] L. Sorensen, J. Botsis, T. Gmr, and L. Humbert, "Bridging tractions in mode-I delamination: Measurements and simulations," *Composites Science and Technology*, vol. 68, pp. 2350–2358, 2008.

[2] O. O. Ochoa and J. N. Reddy, *Finite Element Analysis of Composite Laminates*, vol. 7 of *Solid Mechanics and its Applications*. Kluwer Academic Publishers, 1992.

[3] L. Sorensen, T. Gmr, and J. Botsis, "Delamination propagation measurement using long gauge-length FBG sensors," in *Proceedings of the 3rd International Conference on Composites Testing and Model Identification CompTest 2006* (P. Camanho, F. Pierron, and M. Wisnom, eds.), pp. 174–175, University Press, 2006.