MAK 411E Experimental Methods in Mechanical Engineering

Report Writing and Presentations

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General comments

- Use third person (passive)
- Third person: Equation (5) is recommended for the final correlation in accordance with the limitations of the data as discussed above.
- First person: We (I) recommended Eq. (5) for the final correlation in accordance with the limitations of the data presented in our discussion above.

Be specific

- An analysis of the experimental data showed that the average deviation from the theoretical values was less than 1 percent.
- The experimental data are in good agreement with the theoretical development. (??? How good ???)

Contents of a report

- Front Matter
- Abstract
- Introduction
- Background and Previous Work
- Theoretical Presentation (s)
- Experimental Apparatus and Procedure
- Results of Experiments
- Interpretation of Results
- Conclusions and Recommendations
- Acknowledgements
- References and Bibliographies
- Appendix Materials

Front Matter

- Title page, with author affiliations
- Sponsor of report activity (if any)
- Table of contents
- List of nomenclature
- List of figures
- Preface (if any)
- A letter of transmittal if required

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Abstract (Summary)

- The abstract should attempt to accomplish the first objective in a very short format without mathematical formulations.
- It should tell what was done, and the conclusions which resulted from the work.

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Introduction

- The purpose of the introduction is to lay the groundwork for the more detailed discussions in the body of the report.
- Used to clearly state the motivation for performing the work, i.e. to define the problem

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Background and Previous Work

- A survey of the literature
- Usually a part of the introduction
- Both acknowledge the previous work and point to the need for the current study.

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Theoretical Presentation(s)

- A large section is devoted to development of theoretical information.
- Enables the reader to understand the implications of the experimental work.
- Leave long detailed derivations to appendices.

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Experimental Apparatus and Procedure

- Sufficient information on the apparatus and experimental procedure.
- If the results are concerned with research and new knowledge, give detailed information.
- Cite standard testing procedures (ASME, ASTM, etc.) without giving details.

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Results of Experiments

- Be consistent with the needs of the intended audience.
- Tabular and graphical presentations.
- Focus on the significant features of the data

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Interpretation of Results

- The background, theoretical presentation, and experimental results are brought together to lead the reader to the conclusion of the study.
- Sometimes results speak for themselves.

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Conclusions and Recommendations

- Collect all the important results and interpretation in clear summary form.
- Usually many readers read only abstract and/or conclusion sections.
- Recommendations for the future studies may be included.

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Acknowledgement(s)

- Recognize people or institutions contributed to the study other than the listed authors.

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References and Bibliographies

- References should be cited when a work was used in writing the report.

[1] Davis, C.L., Sadeghi, F., Krousgrill, C.M., 2000, "A Simplified Approach to Modeling Thermal Effects in Wet Clutch Engagement: Analytical and Experimental Comparison", ASME Journal of Tribology, Vol. 122, pp. 110-118.

[2] ….

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Appendix Materials

- Detailed mathematical derivations
- Tables of raw experimental data
- Calibration information
- Uncertainty analysis
- Tables of material properties
- Calculations obtained from other sources
- Detailed computer programs

Oral Presentations

- Determine the audience
- Determine the allotted time
- Use slides or overhead view graphs
- Avoid the use of complicated mathematical relations
- Summarize the results with clear statements
- Speak loud enough so everybody can understand
- A courteous "thank you" to close the presentation