3rd Bac. Mech. and isolated
MECA-0036

Report guidelines 2017-2018

Written report

The report must be scientifically written and fully written in either French or English with the help of a text editor such as LaTeX(recommended) or Microsoft Word. It must be converted to a pdf format. The pdf file must be totally unlocked and the text must be selectable.

- General layout:
  - The font size is **12**.
  - The font is either Times New Roman or Arial.
  - The highlighting of a part of a text is done using italics.
  - All pages must be numbered.
  - Check the spelling and syntax of your sentences!

- The report must be well structured:
  - **Cover page**: The cover page must at least contain: the course title, the project title, the project number, the first and last name of every group member and the academic year.
  - **Table of content, figures and tables**
  - **Introduction** (few pages) : The introduction contains a general description of the field of work, a precise outline of the report and a clear description of the studied problem.
  - **Main body** (maximum **60** pages): The report must be divided into sections, sub-sections, etc. Each section/sub-section begins with a description of the subjects that will be presented. Each section ends with a summary of the ins and outs of the section. It is recommended to split the text into multiple paragraphs to ease the reading of the report. In general, a paragraph contains an observation, a description or an explanation. It is useless to include theoretical reminders in the report. However, theoretical results can and should be cited to assert or confirm your observations and conclusions from the finite element analysis.

- **Conclusion** (few pages): The conclusion synthesize the work and the relevant results. The conclusion does not contain any new information compared to the main body. The entirety of your work should be understood after the reading of your introduction and conclusion only.
- **Bibliography** : All your bibliographic references (books, articles, course notes, internet websites,...) must be given in the bibliography[1]. All references are cited in the text under the following form: "[1]".

- Equations:

  - Every equation must be numbered.
  - Every mathematical symbol must be clearly defined, where they first appear in the text.
  - The dimensions of every mathematical symbol must be mentioned under the following form "[MPa]", where they first appear in the text. Dimensionless symbols are mentioned with "[-]".
  - Every equation must be referenced under the form: "Eq. 1" in the text.
  - Every equation is part of a sentence and the text and the equations must be punctuated accordingly.
  - Every equation must be carefully written[2].

- Figures/Tables:

  - Every figure and table must be numbered and must contain a caption, centered, describing what is shown in the figure/table: syntax rules apply. The caption must be self-sufficient.
  - Every figure and table must be referenced respectively under the form "Fig. 1" and "Table 1" in the text.
  - Every figure and table included in the report must be commented.
  - The reader must be able to reproduce every figure/table/graph of your report, if he so desires. This involves that every parameter connected to a figure/table/graph must be clearly indicated in the caption or in the text (e.g. applied load, geometry parameters, type of elements, etc).
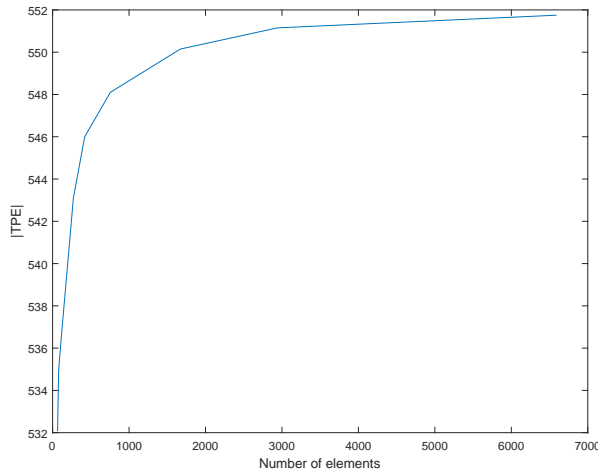

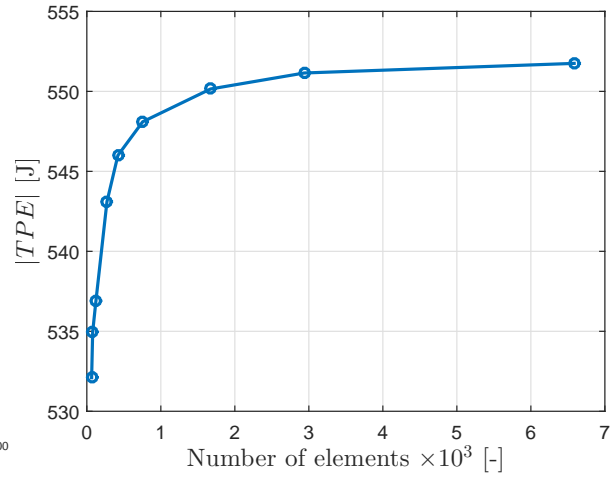[1]See ULiege: Avoid plagiarism.
[2]See LaTeX: Mathematical expressions.

– When referring to the value of a scalar (Von-Mises stress), vectorial (displacement), or tensorial (stress) field, please indicate the position at which the value is evaluated.

- Graphs:

  – Prefer vectorial formats for graphs. For LaTex, use the encapsulated postscript format (.eps). For word, you can directly copy/paste your Matlab or Excel figures.

  – Do no forget to mention the units.

  – The size and font of the text used in the axes/legends of your figures should be similar to the ones used in your main text. (*Fontsize* keyword in Matlab).

  – Carefully select the limits of the displayed values in the axes (*xlim* and *ylim* commands in Matlab).

  – Increase the width of your lines if necessary (*LineWidth* keyword in Matlab).

  – Use a legend if multiple curves are plotted on the same graph (*legend* command in Matlab).

  – Use a grid to increase the readability of the graph (*grid* command in Matlab).

  – Do not use similar colors on the same graph.

  – Reduce the number of graphs by plotting multiple curves on the same graph.

- Results on meshes:

  – If possible, avoid screenshots and try to use the "Export PNG" button of NX[3] and save the images in (.png) format.

  – A scalar field is always displayed on a mesh.

  – If a scalar field is displayed on your mesh with colors, a color legend must be included (with carefully chosen values!).

  – If multiple figures are compared, their color legend should be identical.

  – Prefer "banded" color display over "smooth" color display[4].

  – Hide the coordinate system (press "w").

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[3]See Project presentation => exporting results.
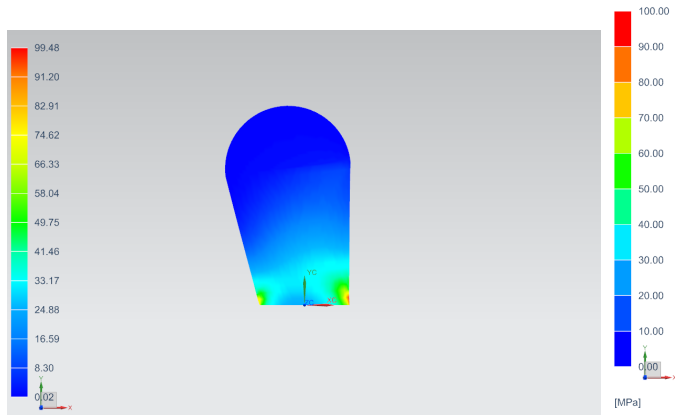[4]Edit post view => Display => Color display: Banded



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Number of elements
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530
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0
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2
3
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7
Number of elements $\times 10^3$ [-]

Bad figure (bitmap format, thin lines, no units, unreadable text and values, no grid).

Good figure.

Figure 1: Comparison of figures obtained in Matlab.

99.48
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80.00
70.00
60.00
50.00
40.00
30.00
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10.00
0.00
[MPa]

Bad figure (format JPG, useless coordinate system, too small, no units, no mesh, grey background, bad color bar, smooth display...).
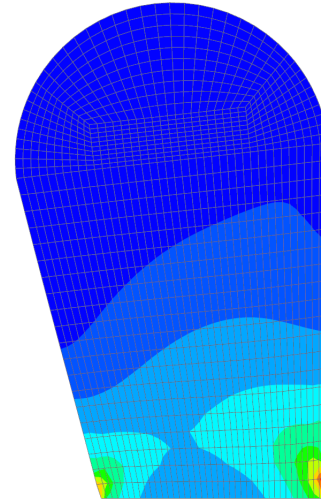
Good figure.

Figure 2: Comparison of figures obtained using NX.