Recommendations for the preparation of reports

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Format

Please use a layout that is pleasant to read without wasting space. Suggested settings are: 11pt font size, 1.2 line spacing, and 1in margins.

Figures

Figures can have more impact than textual descriptions. However, their message can be lost if too many figures are included. As a guideline, every figure should convey an important piece of information and be discussed in the text.

A typical figure in a report should be about 3in in height. Oversize figures only if the content justifies it.

The text (*e.g.,* axes and labels) in a figure should be easy to read, which means that the font size should be comparable to the fonts in the report, or slightly smaller.

The axes of the figures should be labelled with units given in parentheses. A caption should also appear below the figure.

The axes should be scaled appropriately. Do not use a range of 1 second if you want to show a transient response of $10ms$.

Importing Matlab figures

To save a Matlab figure, click on *File/Save As* at the top of the figure window, then save the figure using one the available formats. Try different formats and choose the option that works best with your specific text processor. Various formats are discussed at:

   http://www.mathworks.com/help/matlab/ref/saveas.html.

As a suggestion, try the *.tiff* format for Word documents and the *.eps* format for Latex documents. The Matlab *.fig* format is good to save the data of a figure, allowing you to reformat the figure later. However, it is even better to save the simulation file or the data file together with a Matlab macro (m-file) to plot the data. This strategy makes it possible to double-check the results later, modify the settings, or fine-tune the plots.

Plots generated by Matlab are large in size and typically need to be reduced (about 60-70% reduction for a report). When reduced in size, the fonts and line widths of Matlab figures become too small to read. The following procedure can resolve this problem. At the top of the figure, click *File/Preferences.* Then, in the *Preferences* window, click on *Figure Copy Template*, change the font size to 16 and the line width to 2 points, then click on *Apply to Figure.* Afterwards, return to the figure window and save the figure.

Do not resize figure windows before saving the plots. Increasing the size on the screen increases the size of the exported figure, which then needs to be reduced at a greater percentage and results in smaller font sizes. Keep the default size for the figure windows, and keep the scaling factor the same for all figures in the document.

It is not important that you follow these exact procedures and specifications, but it is important that all figures in your report be readable, and consistent across the report.

Simulink figures and block diagrams

To print figures showing simulation data from Simulink, use a block to save the data to the Matlab workspace, then plot the data from the Matlab command window. If the data is worth keeping, save the useful variables in a file using the Matlab command *save* (you can bring the data back to the workspace later using the *load* command).

To create a figure containing a block diagram, let's say that the diagram is in a window titled *system* and that you want to save the figure as a file *figure.tif*. Click on the *system* window (*i.e.,* "highlight" the window), then type in the Matlab window:

  saveas(get_param('system','Handle'),'figure.tif')

If the fonts of the figure are too small after reduction, select the whole diagram with the mouse, right-click on any part of it, choose *Format/Font*, raise the size of the fonts, then save the figure again.