

Engineering Laboratory Reports Manual Particular Issues

Style for person for manual as a whole:

A big issue that you can see even in the first few paragraphs: the Manual as is (and as it was in the earlier draft) is written more “personally” than technical writing should be - it has “I” and “you” in abundance, and plenty of imperatives. Yet, one of the important messages is that technical writing should normally be third person, passive voice. The reason for this current form is that most of the material originated as tutorials and email responses to my students at one time or another. The current style has more immediacy and is more direct, those things English teachers like but we normally shun in technical writing. I’m struggling with the issue of whether the whole should be rewritten to a less personal and more professional style. (I do explain my reasons for writing in that style in Chapter 3. I’m not trying to be a hypocrite, but maybe I am one anyway.) Any thoughts you may have on this would be appreciated.

Need for “Real-World” reports:

So far I have not received anything for the “Real World Examples” appendix. I’ve asked a few people, but I expect what I need to be able to do is provide the context, the sense of what the overall Manual will look like, and where the report(s) would fit. It may be that this piece will lag the rest, and will end up being an “open document” type of resource. Ultimately, I’d think having an “example real world report” in the Manual (or its support resources) would be good for a company: it would show students (prospective employees) what kinds of interesting work they might end up doing. (I expect such reports would be redacted and condensed as appropriate.) Right now my plan is to complete the working draft as much as I can, then ask members of the Industrial Advisory Board (and anyone else I can find who is interested) for contributions. It really would help if I had a few examples in hand when I did that.

Need for a repository for Engineering / Science and Engineering documents broader than just to support one class (as in this case):

This is something that needs to be addressed at the Dean level. I know the Dean is concerned about the general issue of school level IT. Right now CS manages their own IT using student and faculty contributed resources, but that model is not practical for EE and Physics as a department. It may be that the school will do something. The need for support beyond what the University level IT provides is becoming more obvious all the time. The University seems to see things as either “The University Web Site” (Controlled by the University for purposes of PR), the “portal” (for promulgating administration policies and information), individual faculty members’ web sites (no real support that I know of; everybody does his own thing), and materials to support specific courses using Blackboard and/or other courseware, all under University control (something I have not dived into). I really don’t know what the right answers are to managing this. There are people around that know much more than I do. But, I will need to be more active in framing the needs. Support for access to the online version

of the Lab Reports Manual (as well as other tutorial material not specific to particular courses) will be my point of interest. Sometime soon I'll raise this issue to the dean, including Ed's suggestion and reference. (For now, I will be using my personal web site for my academic postings; that's my primary reason for having it.)

Concerning laboratory Record Keeping:

A question: Are students required formally to keep a laboratory notebook for ME labs? Physics Labs? The current laboratory reports manual has an appendix on laboratory record keeping that was hastily adapted from what Dave Carey was doing for EE337. In EE283, EE241, EE252, EE342, and EGR222 I never required formal laboratory notebooks; indeed, students were not really given any formal guidance on laboratory note taking. I'm trying to get a sense of whether the Laboratory Reports manual should address note taking or laboratory notebooks at all, and if so, what are the most common and widespread principles and practices. If you have any views or suggestions, especially coming from the ME side, or Physics, I'd appreciate hearing. Thank you.

Example Good Laboratory Reports:

Do you have examples of "good" laboratory reports that could be used as examples? I have several from EE and ME. Nothing representing Thermo or electromagnetics, or physics. I would very much like to represent other domains.

"Gone Bad" examples:

Do you have examples of "Sentences Gone Bad" from student laboratory reports? Constructing meaningful sentences in the context of engineering remains a challenge for many of our students, and it's not just English writing issues. I'm attaching an appendix of examples I've compiled, but they are all from the electrical domain, and mostly digital at that, so far. I'd like to get a more representative set of tutorial examples.

Do you perhaps also have examples of "Graphs gone Bad" or "Diagrams / Schematics Gone Bad?" I do not have any examples now, but I'm hoping to have an appendix parallel the "Sentences Gone Bad" that addresses good style and usage for graphs and diagrams.

Additional "How To" guidance for drawing, porting figures

One of the things needed is "How to" material on porting graphics, Diagrams, and Schematics from design tools into a Word document in a presentable form. I can and have done that for the electrical software such as PSpice, Logicworks, and also will do so for MATLAB. But, I have not done that for other tools, and we need such examples, especially from the ME design software tools. If you have any existing tutorial material or other help that could be included in the Manual, it would be most helpful.

Perspectives on the use of scientific notation?

Another interesting point is that in some ME reports recently seen, scientific notation seems to be used much more commonly than in EE reports. We encourage students to use "KV" or "mA" or other units as appropriate rather than scientific notation, but then the Mechanical world has many more units than does the Electrical domain. I do know K and M are used, say, for pressure (KPa for example). But even in the electrical domain, when really large or unusual values are being addressed, scientific notation does get used. I'm just wondering if it's more common in the ME world. (I have normally advised, "Avoid scientific notation for numbers without a compelling reason." Many students, coming out of their science classes, think scientific notation is "normal" within the discipline, and use, say, "1.5 x 10² Ohms" instead of "150 Ohms". I've been telling them not to do that. So, maybe I need to caveat this advice, and add a paragraph about appropriate number notation in the ME domain. Any advice you can give would be appreciated.

Examples of preposition (mis) application – any particular issues from other domains?:

In the current lab manual, I have a paragraph about the appropriate use of prepositions to address physical phenomena. The biggest common EE error is reference to "Voltage through a Resistor" and similar kinds of mis-usage. Are there some particularly common ME usage problems I could mention? (I also have now a paragraph of "load" vs "force".)

Figure particulars:

I have identified what (I thought) a good figure should look like and its features. I seem to be a bit too particular on some things. For some faculty members, putting a box around the figure is OK, and for some it's OK not to include vertical grid lines. Are there other respects in which I have assumed too much?