

CAD Laboratory Report Guidelines

1. Introduction

In writing any report you should clear purposes, this will help you decide what to include and what to leave out. In this case you need to present what you've done, how you did it and what conclusions you can draw from it. What you shouldn't do is try to make the report unnecessarily long or include sections about how much 'fun' the lab was or how you feel you have benefited personally through doing it. Keep it scientific. Avoid very long sentences and keep the concepts as simple as possible. Don't worry about your English not being perfect. It is understandable how difficult writing these reports may be but this is good practice for when you write your MSc dissertation.

2. Report Contents and Structure

The CAD laboratory reports should be sufficiently long as to require some organization. This does not need to be over the top, so sections normally seen in much longer reports are not necessary here. No summary or abstract is needed, nor do you need to provide a Table of Contents. Otherwise your report should contain:

- **Cover or title page** with your name and student number. It should clearly indicate which lab it is and that it is a Microwave CAD Laboratory.
- **Introduction**, this should just state what it is you are doing. You should say what the circuit you are designing is and what it can be used for. Keep it simple, what is it and why do we use it?
- **Theory**, For the amplifier design this will be a brief statement of stability analysis, gain definition, how to achieve maximum gain and theory of the input and output matching circuits you have designed. Reference to a Smith Chart is desirable here. Many textbooks cover these but please don't just copy them. Explain it in your own words.
- **Procedure**, this should take the form of describing the circuit in terms of the ideal component layout and its transformation into microstrip, with any assumptions made along the way. For this lab it is useful to tell the circuit development as a story. Explain what you did and what the intermediate results (that is at the ideal stage) were. However the final results are not shown here they should follow in the next section.
- **Results and discussion**, these should not be too long, this should be the final circuit performances (both narrow and broad band circuits) so since they are amplifiers the gain, S_{21} should be shown as should the return loss. Discussions on your results in terms of gain, bandwidth and input/output return losses are expected.
- **Conclusions**, in essence these should draw together the important points mentioned in the Results section, concluding on issues of bandwidth, gain and return loss.
- **References**, If you do 'borrow' anything from a text book or paper it should be properly referenced and should not be quoted verbatim as your own work.
- **Appendix**, may or may not be needed.

3. Style and Other Relevant Points

This brings to a couple of points regarding style of reports.

- You should include headings under the decimal notation. So the main title of the section is 1. The first sub-section is 1.1, then 1.2 and any sub-sub sections are 1.2.1 etc.
- Clearly label and caption all tables and figures, don't just have them in the text without even mentioning them.
- Avoid the use of first or second person, like 'I did..' or 'we made..', instead use the third person, eg, 'it was shown'.
- Avoid jargon, keep sentences short and be concise.
- Keep the report short — it shouldn't really be any longer than about 15 pages.
- Finally, plan your report before writing it — you don't necessarily have to write it in the order of which it is read.