

ELEC-E3210 Optoelectronics

Summary instructions vs. 0.2

Instead of the exam you can pass the course by writing (weekly) summaries on the lecture material. This document describes the practices for writing the summaries. These instructions will be updated as need arises. Most of the instructions are general for scientific reports, and when the summaries differ from real scientific reports, the text color will be red.

The general lengths of the summaries together should be 50-80 pages depending on the use of figures and the grade to aim at. This document tries to convey to the rules described and can be used as an example.

This version is not complete. This document may contain styles contradicting the written rules. Let me know if you spot errors. Ask me by email if something is still puzzling you.

It is good to send the first part you write for me for comments. Then after that you even can submit either weekly reports of the whole summary as one document. There is no definite deadline for the summary other than, let's say, June 15, because the Finnish vacation season starts from the Midsummer. You can submit the report later, but then the grading will be done in August at earliest.

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ELEC-E3210 Optoelectronics

Lecture summary

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1 Text	3
2 Headings	3
2.1 Introduction	3
2.2 Heading levels	3
2.3 Heading font	4
3 Equations	4
4 Figures and tables	5
5 References	6

1 Text

When writing, make sure that all the paragraphs have the same style. The preferred font for the normal text is a serif font. Use the same font and font size throughout the document. The preferred paragraph alignment is “justified”. Separate paragraphs from each other either by an empty line (and no indentation) or by indenting the starting line of the paragraph. In a document with equations an empty line is usually the better choice (because it works better after equations, see below).

All the abbreviations in the text must be defined before use. In this document face-centered cubic (FCC) lattice structure is mentioned in an example figure caption below. So if using FCC in the caption, the definition must come in the text before referencing to the figure.

2 Headings

2.1 Introduction

If the chapter contains (sub)sections like this, it is good to start the first section as an introduction, mentioning general issues related to the whole chapter and introducing what will be covered in further sections.

On the front page, use the title provided on the previous page. Also write your name and student number. Table of contents (TOC) can be on the front page if it is quite short like in this document. Otherwise use a separate page for the TOC.

2.2 Heading levels

Use headings and subheadings to structure the text. In a document this long, usually at least two levels of headings are needed. Perhaps even three. Number the sections like shown here.

Start each chapter (= highest level) from a new page (unlike in this document). Sections can start continuously. Just make sure that the section heading is not on the different page than the following text.

2.3 Heading font

Heading font is usually a “sans serif” font, so different from the normal text. Use indentation, bolding (or italic) and font size to visually show the level of the heading, too. It is not a good idea to mix bold, italic and underline in the same document. Choose one method to highlight the heading and stick to that.

3 Equations

Write all the equations on their own lines. Number all the equations. The preferred numbering style in a text this long is to number the equations by chapters. Alternatively, the numbering can be limited to those equations that are referred to in the text (then some are numbered, some not). All the figures should be referenced to in the text by at least once.

The style for an equation line is as follows

$$F = ma , \tag{3.1}$$

where F is force, m is mass, and a is acceleration. The equation is part of a sentence. In this case the sentence continues with the introduction of the symbols in the equation, so there is a comma after the equation. If the sentence ends to the equation, there is a full stop after the equation. Only rarely the sentence continues without the need for some character after the equation. You can separate the character from the equation with a space or two if it somehow seems to interfere with the equation. Notice also the small cap letter in the beginning of the line after equation, because it is part of the same sentence. If you use indentation as the paragraph separation, this line must not be indented since no new paragraph is starting here. In the equation style used above there is a centered tab at 8 cm and right tab at 16 cm (close to the right margin). Also remember to use italic for mathematical symbols (like above) both in the equation and inside the text.

For the summary document only, you can copy the equations from pdf's or web pages or scan them. You don't need to keep references where you got them.

4 Figures and tables

Use figures wisely to illustrate phenomena, structures or whatever if, *e.g.*, the concept is difficult to describe in words. Center the figure on the page. All the figures should have a figure caption under it. Number all the figures continuously. Again numbering by chapters is recommended. All the figures should be referenced to in the text by at least once (the example below does not have one because the figure is not related to this text). Try to keep the figures on the same page as they are referenced to.

Try to form a full sentence(s) in the figure caption. Sometimes it just does not work, so this is not a definite rule. It is preferred that the figure caption style is a little bit different than the normal text. Below in the example the font size and the line separation are a little bit smaller than in the normal text. The paragraph is also indented (still justified) for visual appearance. Below there is 6 pt gap between the figure and the caption (could be a little more also, depends on the figures themselves). After the caption there is an empty line to separate it from the following text.

Figure caption text does not ever start with an article (a or the). It will be left out. After the figure number there is a full stop. Then all the sentences (also the last one) will end in a full stop like the normal text.

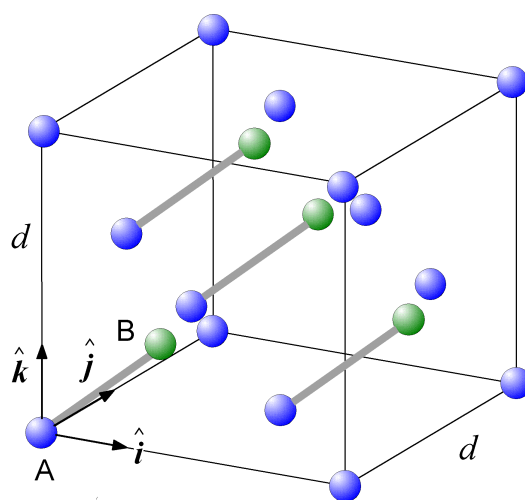


Figure 3.1. Diamond crystal lattice structure consists of two FCC sublattices. The green spheres and the blue spheres, respectively, represent these different sublattices.

For tables, the rules are the same except the table caption comes above the table.

5 References

For the summary document only, you don't need to keep references when referring to course material (basically anything on the MyCourses page) or the course books (Singh and Bhattacharya). And as said already above, you don't need to keep references of the equations, figures, and tables you might have taken from anywhere.

If you want to find additional information on something not covered by the books or lectures, please refer to general rules on references (this may be written out in later versions).