

Manual for  
**L<sup>A</sup>T<sub>E</sub>X** Homeworks of cmpe220

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Haluk O. Bingol

## 1. Goal

There are two goals for these homeworks.

- Every student of cmpe220 should be familiar to  $\text{\LaTeX}$  system.
- As a crowd source project, translate books that are out of print to  $\text{\LaTeX}$ , make them freely available on the web of cmpe220.

**Remark.** Since one of the goal is to get a  $\text{\LaTeX}$  book in the end, exact appearance of the scanned page in  $\text{\LaTeX}$  is not targeted. What is targeted is to end up with proper  $\text{\LaTeX}$  code that you would expect to see in current state of the art books. Note that some of the books such as Calculus by Suer and Demir is written by means of typewriter. So it is almost impossible to obtain the exact page layout in  $\text{\LaTeX}$ , which is clearly not we would like to get. Proper use of `\section` or `\subsection` is what is valued and grading will be done accordingly.

## 2. Page Assignment

Each student is assigned a couple of pages from a book. The assignment list is sent to elist. If your name is missing, please contact the assistants.

## 3. Grading criteria

Fit in one page (20 points). If your document spans through multiple pages, you will fail this phase. Similarity to the original (60 points). You will get full points for similarity if your page is identical to the original one in the book. You will lose points for each difference you commit. Readability of the .tex file (20 points). Try to keep your documents readable, make sure you use indentation. Bonus (10 points). Figures done in tools such as  $\text{\LaTeX}$ , matlab or inkscape and the source code of the figure is provided.

**3.1. Handling Figures.** In addition, you will observe that some pages contain figures and this makes it more difficult to typeset a page. To remove the injustice relative to the “easier” ones, here is the deal:

You can either snip the image and embed it in your document, or You can create a vector-based version of it (like .png), using an application such as Inkscape, and embed that image. Since the latter is harder but makes the figure more attractive. You will be graded a 10-point bonus for each image you convert.

## 5. FILE NAMING CONVENTIONS

```
1 |  
2 |-- suerdemir  
3 |   |-- HBSuerDemir.sty  
4 |   |-- latex  
5 |     |-- b1p2-023.tex  
6 |     |-- b1p2-024.tex  
7 |     |-- b2p1-243.tex  
8 |     |-- images  
9 |       |-- b1p2-023-fig01.eps  
10 |       |-- b1p2-023-fig02.pdf  
11 |       |-- b2p1-243-fig01.jpg  
12 |     |-- imageSource  
13 |       |-- b1p2-023-fig01.m  
14 |       |-- b1p2-023-fig01.m.readme.xxx
```

LISTING 1. Directory structure

### 4. Organization of Directory Structure

Suppose SuerDemir is the root of your  $\text{\LaTeX}$  work. File HBSuerDemir.sty and directory latex should be in the root directory.

latex. Directory latex contains .tex files for the pages and directories images and imageSources.

images. Directory images contains all the images of figures.

imageSources. Directory imageSources contains the image sources such as inkscape, matlab, or even  $\text{\LaTeX}$  files that are used to create images. If there is a need for further description how you made the image use b1p2-023-fig01.m.readme.xxx file where xxx is the proper extension for the program that you use your description.

### 5. File Naming Conventions

Note that file naming convention is very important for us to check your work. Use **b** <BookNo> **p** <PartNo> - <PageNoInThreeDigits>.tex convention where **b** and **p** stand for book and part, i.e., either 1 or 2. For figure on the page use **b** <BookNo> **p** <PartNo> - <PageNoInThreeDigits> -fig <FigNo>.eps format.

For example page 34 of book 1 part 2 should be named as b1p2-034.tex. Similarly, second figure on the same page should be named as b1p2-034-fig02.pdf. Please make sure that you have nothing more or less in the file names since we merge the files by means of programs anything different than would create problems. For example do *not* use file names such as b1p2-034-final.tex, b1p2-034-v1.tex or b1p2-034-035.tex.

**5.1. Page Number.** Page number is a main course of confusion. When you have the pdf of the scanned book there are two different page numbers.

## 6. L<sup>A</sup>T<sub>E</sub>X HINTS

One number is the page number of the scanned copy. that is the page number of the pdf document. We do not use this.

What we use is the page number that you see on the scanned page. That is, *the page number that we use is that of the book*. For example Fig. 5.2 is the page 240 of book 1 part 2. Therefore its file name should be `b1p2-240.tex`. which

See the document just prepared for this at xxx For Calculus by Suer and Demir comes as four books named as book one and book two, each of which has part one and part two. Their covers are in Fig. 5.1

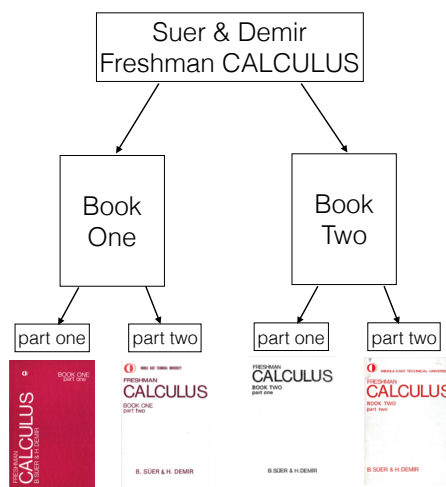


FIGURE 5.1. Covers of Calculus by Suer and Demir

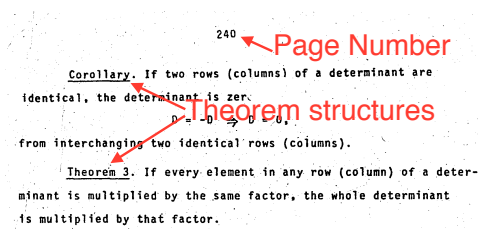


FIGURE 5.2. Page number and theorem-like structures

## 6. L<sup>A</sup>T<sub>E</sub>X Hints

**6.1. Usage of Math.** Use inline path by  $\sin x$ . Another example of inline is  $\sum_{i=0}^{50} \frac{1}{i^2}$ . Some time you want to get math expression as a separate

line, which is called display mode in L<sup>A</sup>T<sub>E</sub>X, as follows

$$\sum_{i=0}^{50} \frac{1}{i^2}$$

Note that the same L<sup>A</sup>T<sub>E</sub>X code have different representations when it is inline or display mode.

If you are going to refer an equation, use the following

$$(6.1) \quad x = \sin y$$

to give a number and refer that as Eq. 6.1. Do not try to get the same number with the book. When all pages are merged, L<sup>A</sup>T<sub>E</sub>X will handle the equation numbers.

**6.2. Theorem-like Structures.** There are special way to handle theorem-like structures. As follows:

THEOREM 6.1 (George Theorem). *This is important George theorem.*

PROOF. This is the proof of the theorem.  $\square$

THEOREM 6.2. *This is just an ordinary theorem without proof.*

COROLLARY 6.3. *This is a corollary.*

Using Theorem 6.2 we get  $x = 1$ .

**6.3. Usage of Subdivisions.** Please use L<sup>A</sup>T<sub>E</sub>X sectioning constructs `\section`, `\subsection`, `\subsubsection`, as given in the Fig. 6.1. Note that you do not do anything about chapters. We will handle the chapters during merging. Your level starts with the level one below chapters.

CONTENTS	
CHAPTER 1 FUNCTION, LIMIT, CONTINUITY	
1. 1 NUMBERS, 1	
A. Integers, 1	
B. Rational numbers, 1	
C. Irrational numbers, 3	
D. Real numbers, 5	
Number axis 6; square root, 8; absolute value, 9; distance, 10	
E. Complex numbers, 11	
EXERCISES (1-15), 15	
1. 5 FUNCTIONS, 42	
A. Definitions, 42	
Piecewisely defined functions, 43	
B. Types of functions, 45	
a. Polynomial functions, 45	
b. Rational and irrational functions, 45	
c. Algebraic functions, 46	
d. Trigonometric functions, 48	

FIGURE 6.1. Usage of subdivisions

**6.4. Images.** The goal of LaTeX homework of cmpe220 is not make you great artist in figure drawing. Therefore feel free to cut the image of the scanned page, make it a separate pdf and use it in your homework. If possible use .eps, .pdf or .png formats for images.

For some of you who like the challenge you are welcome to draw figures using some tools such as matlab, inkscape. Of course you get extra credit for this. If you do that, please provide the material that you used so that

## 6. L<sup>A</sup>T<sub>E</sub>X HINTS

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```
2 \begin{figure}[htbp]
  \begin{center}
    \includegraphics[width=0.5\columnwidth]{%
4     {images/b1p2-023-fig02.pdf}}
    \caption{
6     Covers of Calculus by Suer and Demir
    }
8    \label{fig:SuerDemirCovers}
  \end{center}
10 \end{figure}
```

LISTING 2. Code to include image

we can modify them if there were a need. For this purpose use `imagesSource` folder.

Note the file naming convention which provides the page and also the figure within the page. In List. 1 you see matlab file of figure 1 on page b1p2-023 as `b1p2-023-fig01.m`. If you think that you need to provide extra information, you can use `b1p2-023-fig01.m.readme.xxx` where `xxx` is the extension of your documentation program such as `txt`, `md` or `tex`, hopefully not `doc`.

Use the code given in List. 2 to include an image. `htbp` switches of `\begin{figure}[htbp]` controls where the figure land on the page. Use `\reffig{fig:SuerDemirCovers}` to refer the figure, which is labelled by `fig:SuerDemirCovers` as in List. 2.