THE PROJECT REPORT GUIDE

FOR ELE 401 - ELE 402

Hacettepe University
Department of Electrical and Electronics Engineering
Prepared by: Dr. Feza Arikam

Fall 1994 / Revised Spring 2000 / Revised Spring 2003
ABSTRACT

This guide is prepared for ELE 401-ELE 402 students to help them in writing the final project report. The guide is an example of the report format and content. It contains specific information on the page and character setting, page, chapter, section and subsection numbering, report plan and content, referencing, appendices, figures and tables. The students are expected to follow the directions and instructions in this guide closely in writing their reports.
# TABLE OF CONTENTS

ABSTRACT .................................................................................................................. ii
TABLE OF CONTENTS ............................................................................................... iii
LIST OF FIGURES ........................................................................................................ iv
LIST OF TABLES ........................................................................................................... v

1. INTRODUCTION ........................................................................................................ 1

2. HOW TO WRITE THE PROJECT REPORT .............................................................. 2
   2.1 Content .................................................................................................................. 2
   2.1.1 Abstract ............................................................................................................ 2
   2.1.2 Introduction ..................................................................................................... 2
   2.1.3 Theoretical Background .................................................................................. 2
   2.1.4 Project Development ....................................................................................... 2
   2.1.5 Tests and Results ............................................................................................ 2
   2.1.6 Conclusion ....................................................................................................... 3
   2.1.7 References ...................................................................................................... 3
   2.1.8 Appendices ...................................................................................................... 3
   2.2 Format .................................................................................................................. 3
   2.2.1 Page and Character Setting ............................................................................. 3
   2.2.2 Chapters, Sections and Subsections ................................................................. 5
   2.2.3 Referencing and Reference Format ................................................................. 5
   2.2.4 Grammar and Spelling ..................................................................................... 5

3. FIGURES AND TABLES ............................................................................................. 6
   3.1 Figures .................................................................................................................. 6
   3.2 Tables .................................................................................................................. 6

4. CONCLUSION ............................................................................................................ 8

5. REFERENCES ............................................................................................................ 9

6. APPENDICES .......................................................................................................... 10

APPENDIX 1
## LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Received HF signal by an oblique ionosonde</td>
<td>7</td>
</tr>
<tr>
<td>3.2 Normalized standard deviations for angle error in $\theta$ and $\phi$ versus SNR for two paths for MS-DOA (solid line) and MUSIC (broken line) a) $\sigma(\theta_1)$ vs SNR, b) $\sigma(\theta_2)$ vs SNR, c) $\sigma(\phi_1)$ vs SNR, d) $\sigma(\phi_2)$ vs SNR</td>
<td>7</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Likelihood ratios for NRCS for various grazing angles, V and H pols</td>
<td>7</td>
</tr>
</tbody>
</table>
1. INTRODUCTION

This document is prepared as a guide for the project report required for ELE 401-ELE 402 course. The students are expected to fulfill the requirements and they will be graded over both the report format and content.

The guide is composed of sections that are required for any technical report. Thus, this report guide is itself an example of the report format. All technical reports should start with the title page, followed by the Abstract page, Table of Contents, List of Figures and List of Tables. The first chapter of the report is the Introduction. Other chapters that discuss and provide the work done forms the body of the report. The Conclusion chapter is the last chapter of the report. The report ends with the References section and the Appendices (if necessary). The specific format that is suggested to be used in ELE 401 - 402 reports is adapted from the Master and Ph.D. Thesis guide of Hacettepe University, (HUTYK, 2001). The report must be submitted by a proper form of binding. Every student should consult his/her instructor for the specific form of binding that is required by the instructor. Unbounded reports (attached, tacked in a file or stapled) will not be accepted.

In the second chapter, the report format and content will be discussed. The third chapter is prepared to be an example for the figures and tables which may be used in the report. The report guide ends with the Conclusion chapter. The References section provides examples of Reference formats for books, journal papers and reports. Appendix 1 forms an example of appendices that may used if necessary.
2. HOW TO WRITE THE PROJECT REPORT

In this chapter, the content and format of the project report is described.

2.1 Content

The content refers to what you write under the titles of chapters, sections and subsections. It is the information conveyed from the author to the readers.

2.1.1 Abstract

The Abstract is the section that comes after the Title page. It contains a short summary of the project report. It should be concise and not more than one page long. The Abstract consists of the purpose and the content of the report. The methods used in the study and the results should also be clearly and briefly mentioned.

2.1.2 Introduction

The Introduction chapter introduces the topic, the subject or the theme. It gives a short background of the topic, defines necessary concepts, states the objective or the goal of the study clearly, mentions the methods used in the work and finally lists what is presented in the other chapters. The introduction and conclusion chapters are usually of equal length. The introduction section should not be divided into sections and subsections unless indicated by the instructor.

2.1.3 Theoretical Background

The body of the report consists of chapters that define, develop and explain the study or the work done. Each chapter represents a major part of the work, such as the theory, experiments, simulations, discussion. Depending on the content, the chapters may be divided into sections and subsections. If the project required an extensive background search on the subject, then the student is expected to provide a section dedicated to the discussion of the methods available in the related literature. The contribution of the student and the derivations used in the project should also be included in this part.

2.1.4 Project Development

The steps that are taken to implement the theory and the project goal are explained in this section.

2.1.5 Tests and Results

The tests done to verify the theory, or the experiments performed should be provided in this part. The results of the study, experiment or the simulation are also presented in this section, followed by appropriate discussions. If the work or study does not provide results, then that part can be skipped and the conclusion can directly be given.
2.1.6 Conclusion

The conclusion always begins with a short summary of the report. Then, a brief discussion of the goals achieved both quantitatively and qualitatively should be provided. If there is any future or continuing work, that should also be mentioned in the Conclusion.

2.1.7 References

When a certain reference is used in the text, it should be mentioned and properly listed in the References section. The reference could be a book, a journal paper, a conference paper, a report or another document. When the document is referred, the last name of the author and the publication year should be given in parentheses separated by a comma, (HUTYK, 2001). An alternate form is to list the references by numbers in brackets such as [1]. Depending on the context, the reference could be in one of the following forms: (Cheng, 1989) or Cheng (1989). If there are several authors, then the reference should be like (Eaves and Reedy, 1987) for two authors or like (Visser et al., 1986) for more than two authors. If figures, tables or appendices are used, then they should be properly referenced before they appear like (Figure 1.1) or ‘as shown in Figure 1.1’, (Table 3.1) ‘as presented in Appendix 1’.

The detailed information on how to prepare the list of references is given in the format and References section.

2.1.8 Appendices

Detailed explanations, heavy mathematical formulations, statistics, graphs which are not necessary for the flow of the report or which may create distraction within a chapter can be placed in a separate section in the report. The appendices are numbered from 1 on, and they are optional.

2.2 Format

In the format section, the page style, character style, numbering, formats of chapters, sections, subsections and references are provided.

2.2.1 Page and Character Setting

The report should be printed or typed on standard white A4 (21 cm X 29.7 cm) paper. Handwritten reports will not be accepted. The students can choose from one of the available wordprocessors, write the report in Latex or type it. The text width should be 15.5 cm and the text height should be 24.7 cm maximum. The left margin should be 2.5 cm and upper margin should be 3 cm. The text should be double-spaced (the distance between the lines should be 1.5 times the width of the line). There should be no paragraph indentation.

The page number should not be printed on the title page. Starting with the Abstract page till the end of List of Tables page, page number should be in small case roman (ii, iii, iv,…); starting with the Introduction page till the end of the report, page number should be arabic (1, 2, 3,…). For the Latex users, the page number goes to the upper right corner of the page as shown in this report guide. For the WORD users, the page number should be on the lower right corner.
The character size to be used can not be smaller than Times Roman 12 or 12 point. The characters should be the standard book characters Times New Roman or Arial. There should be one space left between the words, after the punctuation marks, parentheses, braces and other special characters. All of the sentences and proper names should start with capital letters. Abbreviations should also be capitalized.

The equations that appear in the text should be properly referenced and numbered on the right hand margin. The equation number should be in parentheses and the chapter number should be the first number followed by the point and the equation number. The equation in the display mode should be centralized on the line. An example is Equation (2.1) which denotes the radar range equation:

$$P_r = \frac{P_t G^2 \sigma^2 \lambda}{(4\pi)^3 R^4}$$

(2.1)

where $P_r$ is the received power, $P_t$ is the transmitted power, $G$ is the gain of the transmitting and receiving antennas, $\sigma$ is the radar cross section of the target, $\lambda$ is the wavelength and $R$ is the distance between the target and the radar.

The first page of the report is the title page. This page consists of the title of the report, name of the student, university and course name, instructor’s name and finally the semester (either Fall or Spring) and the year. The title and the student’s name should be bold, capitalized and typed in bigger point sizes. All the other information should be in normal setting except the initial letters should be capitalized. No page number should appear on the title page. All the lines on the title page should be centered on the page. Between the sections, about 2.5 cm should be left. An example of the title page is given in Appendix 1 of this guide.

The second page of the report is the Abstract page. The word Abstract should be capitalized, left justified on the page and typed bold. The content of the Abstract is given in subsection 2.1.1. The page number is in small roman case ii and placed in the upper right corner. An example of the Abstract page is the abstract of this report guide.

The Table of Contents page is the third page of the report. It is a list of the contents of the report and provides a guide to the chapters, sections, subsections, references and appendices with page numbers. The list starts with the Abstract page and Table of Contents, List of Figures and List of Tables (if any used) appears followed by the Introduction chapter. Chapter, Section and Subsections are typed along the left margin and the page numbers are typed along the right margin. Although the Appendices are listed in the Table of Contents, the page numbers of the Appendices do not appear on the list. An example of this page is the Table of Contents page of this report guide.

The figures and tables that are used in the report should be listed in the List of Figures and List of Tables pages, respectively. The setting of these pages is very similar to the Table of Contents page. The figure and table numbers and the captions (titles of the figures or tables are called captions) appear along the left margin and the pages that they occur appear along the right margin.

The pagination of the Table of Contents, List of Figures and List of Tables pages are also in small case roman and they appear on the upper right corner. If any of these lists can not be contained on one page, the list continues on the following page but the title ‘Table of Contents, List of Figures or List of Tables’ do not appear on the continuation page.
2.2.2 Chapters, Sections and Subsections

The chapters start with the Introduction chapter and end with the Results and Conclusion chapter. They are numbered with arabic numerals starting with 1 (the Introduction chapter). The chapter titles appear capitalized in the Table of Contents and on the report pages. In the report, each chapter starts with a new page, the title is capitalized, centralized in the page, and typed in boldface.

The sections and subsections are the natural divisions of the chapter. In the report, the section and subsection titles should appear along the left margin, in bold but only the initial letters of the words should be capitalized. The sections and subsections are numbered by arabic numerals separated by a point. The first number shows the chapter, the second number is for the section and the third number is for the subsection. Going deeper than the subsection level is not advised. The section and subsections appear on the Table of Contents page along with their numbers.

2.2.3 Referencing and Reference Format

In the text, references should be given by the last name of the author and the year of publication place in parentheses separated by a comma, like (Eaves and Reedy, 1989). Alternatively, numbers in brackets can also be used as [1]. These references given in the text should be listed in the References section alpha-numerically according to the authors last name or numerically according to the appearance of the references if brackets are used. The order in the list should be for books:

Authors last name, Initials (separated by points and no space between them), year of publication, title of the book (initial letters of the title should be capitalized), publisher, place of publication.

for journal papers:

Authors last name, Initials (separated by points and no space between them), year of publication, title of the paper, Journal name or appropriate abbreviation, volume number, issue number, page number.

for conference papers:

Authors last name, Initials (separated by points and no space between them), year of publication, title of the paper, Conference name or appropriate abbreviation, page number, place of conference.

Examples of these formats are given in the References section.

2.2.4 Grammar and Spelling

The report should be written in English. The language of the report should be simple, fluent and free of grammar and spelling mistakes. The students should avoid personal comments, slang and daily idioms. The use of first person singular (I) should not be used and replaced by the passive voice. The present tense should be used in the report. The text should contain proper use of the punctuation marks.
3. FIGURES AND TABLES

If there are any figures, charts, graphics or tables are used in the text, these should be properly referenced, numbered, captioned and placed in the text and then listed in the List of Figures or List of Tables sections.

3.1 Figures

The drawings, charts or graphics are called figures. They should appear either on the same page or in the following page as they are referenced. Related figures can be placed together having the same figure number and listed by an extra a,b,c,d... following the figure number. The figure number consists of the chapter number and the figure number separated by a point as in the case of equation number. The size of the figures should be contained within the maximum text size. All the figures should have a caption (title or name of the figure) and they may be enclosed in a frame formed by solid black lines. Examples of figures are provided in Figure 3.1 and Figure 3.2.

3.2 Tables

The information that can be tabulated should be presented in tables. The tables should appear either on the same page or in the following page as they are referenced. Related tables can be placed together having the same table number and listed by an extra a,b,c,d... following the table number. The table number consists of the chapter number and the table number separated by a point as in the case of equation number. The size of the tables should be contained within the maximum text size. All the tables should have a caption (title or name of the table) and they should be enclosed in a frame formed by solid black lines. An examples of tables is provided in Table 3.1.
Figure 3.1: Received HF signal by an oblique ionosonde

\begin{center}
\begin{tabular}{|c|c|c|c|c|}
\hline
\(R_{RL}\) & \(\sigma_{\theta}^0\) & \(\sigma_{H}^0\) & \(\sigma_{\phi}^0\) & \(\sigma_{H}^0\) \\
\hline
3.1x10^{-149} & 3.7x10^{-130} & 1.0x10^4 & 1.2x10^9 \\
\hline
2.5x10^{-10} & 2.5x10^{-16} & 2.2x10^{-16} & 3.9x10^4 \\
\hline
\end{tabular}
\end{center}

Table 3.1: Likelihood ratios for NRCS for various grazing angles, V and H pols

Figure 3.2: Normalized standard deviations for angle error in \(\theta\) and \(\phi\) versus SNR for two paths for MS-DOA (solid line) and MUSIC (broken line) a) \(\sigma(\theta 1)\) vs SNR, b) \(\sigma(\theta 2)\) vs SNR, c) \(\sigma(\phi 1)\) vs SNR, d) \(\sigma(\phi 2)\) vs SNR
4. CONCLUSION

This report guide has been prepared for ELE 401-ELE 402 students. The students are expected to follow the guidelines strictly since they will be graded both on the format and the content of the project report. The guide follows the instructions in (HUTYK, 2001) so if there are any questions about writing the report that is not mentioned in this guide, the students are asked to refer to (HUTYK, 2001) or their instructors. The final report should be properly bounded according to the requirements of the instructor. There should be at least 3 copies, one for the instructor, one for the department and one for the student.
5. REFERENCES


6. APPENDICES

Example of Title Page

TITLE OF THE PROJECT REPORT

NAME SURNAME

Hacettepe University
Department of Electrical and Electronics Engineering
ELE 401 - ELE 402 Final Project Report
Instructor: (Instructor's Name)

Semester(Fall or Spring) Year