Format of Final Technical Report

In academic community, one of the major forms of communication is the technical report. The ability to write a clear, accurate, and professionally presented technical report is a skill you need to develop in order to succeed both at university and in your future career. The following is a conventional format for reporting the results of your research, investigations, and design projects, and will help to guide you in writing one good report.

	Number of Page(s)

Title Page
 	
- This page gives:
 	
   • the title of the report
 	
   • the authors' names
 	
   • the supervisors' names
 	
   • the course name and code, the department, the faculty, and university
 	
   • the date of submission.
 	
- The title of the report should indicate exactly what the report is about. The reader should know not only the general topic, but also the aspect of the topic contained in the report. For example, *"An Evaluation of Internet-based Automated Traveler Information Systems"* instead of "*Internet-based ATIS*".
	1

Abstract
 	
- An abstract is a brief, 200-300 word description of project objectives; investigative methods used and research conclusions or applications. A list of key words that describe the project and identify the major research concept should be submitted with the report.
 	
- The abstract:
 	
   • states the topic of the report
 	
   • outlines your approach to the task if applicable
 	
   • gives the most important findings of your research or investigation, or the key aspects of your design
 	
   • states the main outcomes or conclusions.
 	
- The abstract does NOT:
 	
   • provide general background information
 	
   • explain why you are doing the research, investigation or design
 	
   • refer to later diagrams or references.
	1

Acknowledgments (optional) - Acknowledgment is a statement of gratitude for assistance in producing a work. Acknowledgments precede the contents and should be no longer than two paragraphs.	1

Table of Contents, List of Figures, List of Tables, List of Symbols, and Abbreviations	1-2

- The contents page sets out the sections and subsections of the report and their corresponding page numbers. It should clearly show the structural relationship between the sections and subsections. A reader looking for specific information should be able to locate the appropriate section easily from the table of contents

  - Number the sections by the decimal point numbering system:

  - Number all the preliminary pages in lower-case Roman numerals (i, ii, iii, iv, ...). You don't have to place the number i on the title page. Just count it and put ii on the second page of your report. Preliminary pages are any which come before the introduction, including the abstract and, where applicable, acknowledgements.

  - Number all the remaining pages of your report with Arabic numerals (1, 2, 3, 4, ...). Thus the report proper begins on page 1 with your introduction, which is usually Section 1.

  - Provide a title in your table of contents to describe the contents of each appendix (Note: one appendix, two or more appendices). Don't just call them Appendix 1 or Appendix 2.

- If the report contains five or more figures or tables, they should be listed using the style of the Table of Contents.
- If the report contains mathematical symbols, they should be listed with the meaning used for each one.
- If the report contains abbreviations, they should be listed in alphabetical order with what each abbreviation stands for.

Introduction	2-3

- The introduction provides the background information needed for the rest of your report to be understood. The purpose of the introduction is to set the context for your report, provide sufficient background information for the reader to be able to follow the information presented, and inform the reader about how that information will be presented.

- The introduction includes:

  - the background to the topic of your report to set your work in its broad context

  - a clear statement of the purpose of the report, usually to present the results of your research, investigation, or design

  - a clear statement of the aims of the project

• technical background necessary to understand the report; e.g. theory or assumptions • a brief outline of the structure of the report if appropriate (this would not be necessary in a short report)	
Background or Related Work (propose a title describes your related work) - The purpose of a related work section is to allow you to talk about your work in the context of others. If the topic you are covering has already been done, what is the point in doing it again? Moreover, your reviewer will look at the related works to insure that you have carefully reviewed the literature and have found the relevant documents. - So what makes a good related works section? The best ones manage to educate the reader as to what is state of the art and indicate how it differs from what they have done.	2-3

Statement of Problem (propose a title corresponding to your problem)
 	
- If you are focusing on a problem, be sure to define and state it specifically enough that you can write about it. Avoid trying to investigate or write about multiple problems or about broad or overly ambitious problems. Vague problem definition leads to unsuccessful proposals and vague, unmanageable documents.
 	
  Problem statements often have three elements:
• the problem itself, stated clearly and with enough contextual detail to establish why it is important;
• the method of solving the problem, often stated as a claim or a working thesis;
• the purpose, statement of objective and scope of the document the writer is preparing.
 	
  These elements should be brief so that the reader does not get lost.
- Obviously follows from material in the background section
- Specifically defines and limits the "scope" of the effort.
	1-2

Approach (propose a title corresponding to your approach) - The approach section is the heart of most proposals because it describes the work to be done and details the tasks for performing that work. Preparing a good approach section is not difficult if a writer understands the work to be performed-as well as the client's needs and constraints-and approaches the approach in a rigorous, structured fashion that demonstrates clear and precise thinking. - The approach should be written in terms of tasks or activities: task 1, task 2, etc. Think of the following components in describing each task, and then put the thoughts into words: • Purpose • Activities • Output (or product) • Anticipated problems and solutions (optional) • Timing (optional). - Clear and repeatable description of how you tackled the problem. - Enough information for a knowledgeable person to reproduce the results you are about to present.	2-4
Results (propose a title corresponding to your results) - The function of the Results section is to objectively present your key results in an orderly and logical sequence using both text and illustrative materials (Tables and Figures). The results section always begins with text, reporting the key results and referring to your figures and tables as you proceed. Summaries of the statistical analyses may appear either in the text (usually parenthetically) or in the relevant Tables or Figures (in the legend or as footnotes to the Table or Figure). Important negative results should be reported, too. Authors usually write the text of the results section based upon the sequence of Tables and Figures.	2-4

- Write the text of the Results section concisely and objectively. The passive voice will likely dominate here, but use the active voice as much as possible. Use the past tense. Avoid repetitive paragraph structures. - Must be readable, not pages of computer output - Include problems encountered, believability of results, accuracy estimates. - Picture = 1,000 words!	

Conclusions and Future work
 	
- The conclusions section provides an effective ending to your report. The content should relate directly to the aims of the project as stated in the introduction, and sum up the essential features of your work. This section:
   • states whether you have achieved your aims
   • gives a brief summary of the key findings or information in your report
   • highlights the major outcomes of your investigation and their significance.
 	
- The conclusions should relate to the aims of the work.
- Restate problem, approach, and results
- Utility of results
- Subjects for further study (Future work)
	1-2

REFERENCES
 	
- The two parts to referencing are citations in the text of the report and a list of references in the final section. A citation shows that information comes from another source. The reference list gives the details of these sources. You need to use in-text citations and provide details in the references section when:
 	
   • you incorporate information from other sources; e.g.:
     ❖ factual material
     ❖ graphs and tables of data
     ❖ pictures and diagrams
   • you quote word-for-word from another work (when you do this the page number must be given in the in-text citation)
 	
- In Engineering, the most common referencing style is the IEEE system
  .
- **Examples**
 	
Book
[1] C. W. Lander, *Power Electronics,* 3rd. ed., London: McGraw-Hill, 1993.
 	
Papers from conferences
[2] A. H. Cookson and B. O. Pedersen, "Thermal measurements in a 1200kV compressed gas insulated transmission line," in *Seventh IEEE Power Engineering Society Transmission and Distribution Conference and Exposition,* 1979, pp. 163-167.
 	
Journal articles
[3] K. P. Dabke and K. M. Thomas, "Expert system guidance for library users," *Library Hi Tech*, vol. 10, (1-2), pp. 53-60, 1992.
	1

APPENDICES (optional)	3-10

- These contain material that is too detailed to include in the main report, such as raw data or detailed drawings. The conventions for appendices are as follows:
 	
    • each appendix must be given a number (or letter) and title;
 	
    • each appendix must be referred to by number (or letter) at the relevant point in the text.
 	
- Rest of the tables/graphs
 	
- Computer Listings	

PAGE FORMAT

- Margins should be 1.25 inches left and right; 1 inch top and bottom.

- Text should be in a 12 point serif font (i.e., Times Roman, Bookman, etc.); captions, tables and figures should be in a sans-serif font (i.e., Helvetica, Arial, etc.).

- Spacing should be 1.5 lines, printed on one side of the paper.

- Block-style paragraphs should be used, with no indentation (except for fifth-level) headings, which should be blocked on the left; see Heading Styles, below).

- There should be two returns between a paragraph and the next heading.

- Material borrowed or adapted from external sources must be identified and quoted (i.e., document, source, date and page).

- Avoid half-page and one-sentence paragraphs.

- Do not use contractions.

- When referring to a specific figure or table, spell out and capitalize the words "Figure" and "Table".

- Indented lists of material should be set off with bullets:
    - One blank line should precede and follow a list.
    - Bulleted items should be indented left and right.

- Percentages should be written as follows: 1%, 76%, etc.

- Acronyms must be spelled out the first time used, followed by the acronym in parentheses.

TABLES AND FIGURES

- Tables and figures must be numbered sequentially and titled individually.

- Place tables and figures as close as possible to the text in which they are mentioned.

- Distinguish tabular material from the text.

- Cite a source if the tabular material or figure content has not been generated by the researcher.

- Figure captions should be complete sentences when appropriate.

- Use "Figure 1," not "Fig. 1," or "Table 1." in the text, as well as for captions.

- Unless generated by the researcher, a source should always be cited. The figure source should appear after the caption (e.g., Source: Lawrence Berkeley Laboratory).

REPEAT REQUIREMENTS

- Three (3) hard copies of bounded (hard cover) final report must be submitted to MUFIC.