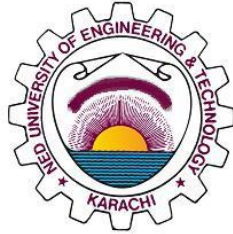


**POSTGRADUATE THESIS**  
**Department of Physics**  
NED University of Engineering and Technology



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## Table of Contents

### Contents

1.	Introduction .....	1
1.1	Background Information .....	1
1.2	Significance and Motivation .....	1
1.2.1	Heading of Subsections in Section .....	1
1.3	Aims and Objectives .....	2
1.4	Methodology .....	2
1.5	Report Outline .....	2
2.	Literature Review .....	3
2.1	Introduction .....	3
2.2	[Title of the Section] .....	3
2.3	[Title of the Section] .....	4
2.4	More Sections .....	5
3.	[Name of the Chapter] .....	6
3.1	Introduction .....	6
4.	[Name of the Chapter] .....	7
4.1	Introduction .....	7
5.	[Name of the Chapter] .....	8
5.1	Conclusion .....	8
5.2	Recommendations for Future Work .....	8
6.	References .....	10

## **List of Figures**

Figure 1: Trend of Monthly Average High and Low Temperatures in Karachi (Shepherd, 1956).....	4
--	---

## **List of Tables**

Table 1: Residual Stresses for a Plate.....	4
---	---

## **List of Abbreviations**

<b>FPC</b>	Flat Plate Collector
<b>TSS</b>	Tubular Solar Still
<b>EPBP</b>	Economic Payback Period



## List of Symbols

### Symbols

$\vec{u}$	Velocity Vector ( $\frac{m}{s}$ )
$T$	Temperature ( $K$ )
$g$	Gravitational Acceleration ( $= -9.8 \frac{m}{s^2}$ )

### Greek

$\sigma$	Normal Stresses ( $Pa$ )
$\psi$	Streamline Function
$\beta$	Tilt of Plate ( <i>degrees</i> °)

## United Nations Sustainable Development Goals

The Sustainable Development Goals (SDGs) are the blueprint to achieve a better and more sustainable future for all. They address the global challenges we face, including poverty, inequality, climate change, environmental degradation, peace and justice. There is a total of 17 SDGs as mentioned below. **Check the appropriate SDGs related to the project.**

- ☐ No Poverty
- ☐ Zero Hunger
- ☐ Good Health and Well being
- ☐ Quality Education
- ☐ Gender Equality
- ☐ Clean Water and Sanitation
- ☐ Affordable and Clean Energy
- ☐ Decent Work and Economic Growth
- ☐ Industry, Innovation and Infrastructure
- ☐ Reduced Inequalities
- ☐ Sustainable Cities and Communities
- ☐ Responsible Consumption and Production
- ☐ Climate Action
- ☐ Life Below Water
- ☐ Life on Land
- ☐ Peace and Justice and Strong Institutions
- ☐ Partnerships to Achieve the Goals

## **Justification of SDG Mapping**

[write one paragraph to justify how you work mapped with the SDG/SDGs ]

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## Abstract



**Note: Number of Chapters and their Names may vary from topic to topic**

## **Chapter 1**

### ***1. Introduction***

#### **1.1 Background Information**

A thesis usually contains five or six chapters. Chapters should be divided into sections that should be numbered according to their chapter numbers. For instance, the numbering of sections of chapter one should be 1.1, 1.2, 1.3, etc.

The first chapter should be “Introduction” and it should provide the background information related to the thesis. The first section of the Introduction chapter should be titled “Background Information”. While the other sections should be “Significance and Motivation”, “Aims and Objectives”, “Methodology” and “Report Outline/Scope” of the Thesis. It should inform the readers what you did in the thesis, why you did it, and how you achieved it. This chapter provides a broad overview on what is discussed in the report.

#### **1.2 Significance and Motivation**

The second section of the chapter one should be “Significance and Motivation”. It should include the importance of the thesis and its benefits.

Subsections should have numbering in accordance with its chapter and section number. For example, the numbering of subsections in section two of chapter one should be like 1.2.1, 1.2.2, 1.2.3, etc. It is not recommended to have only a single subsection in a section.

##### **1.2.1 Heading of Subsections in Section**

***1.2.1.1 Heading of Subsections of subsection in Section if required***  
vjkljkcx

### **1.3 Aims and Objectives**

The third section of the chapter one should be “Aims and Objectives”.

### **1.4 Methodology**

The fourth section of the chapter one should be “Methodology”. It should include the details of the methodology that you have used to solve the problem.

### **1.5 Report Outline**

The fifth section of the chapter one should be “Report Outline”. It should include the scope of the thesis and explain the general outline of the report by highlighting the content that is covered in different chapters and sections.

Kindly include more sections in the Introduction chapter if you prefer.

## Chapter 2

### ***2. Literature Review***

#### **2.1 Introduction**

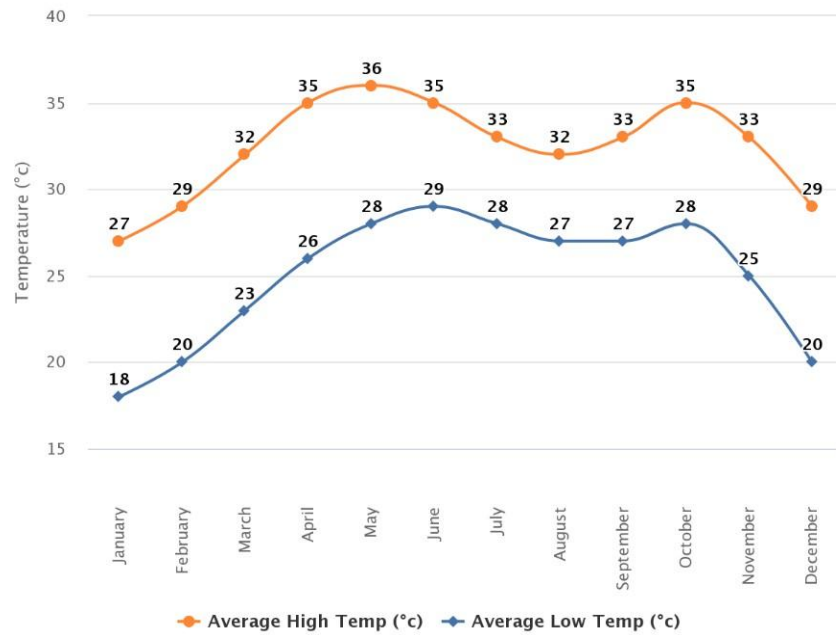
Except for the Introduction chapter (first chapter) and the Conclusion chapter (last chapter), all other chapters should have first section titled “Introduction” and last section titled “Summary/Conclusions”. In Introduction sections, discuss the content of chapters such that the readers will have an idea about what is discussed in the chapters. This allows the readers to know in advance if the chapter is relevant to their interests. On the other hand, the Summary sections discuss what has been achieved in the chapters. Write the Summary sections by keeping in mind that many readers do not have time to read the complete chapters; therefore, they only read Summary sections to get an overview. Consequently, include the most important achievements and aspects in these sections and use past tense to write Summary sections.

The goal of this chapter is you discuss how your work is different from the work already done in the field. You should present a critical review on the past work on your topic. This chapter will in return help students to gather updated knowledge on the thesis and this will enable them to understand the limitations of previous work done on your topic.

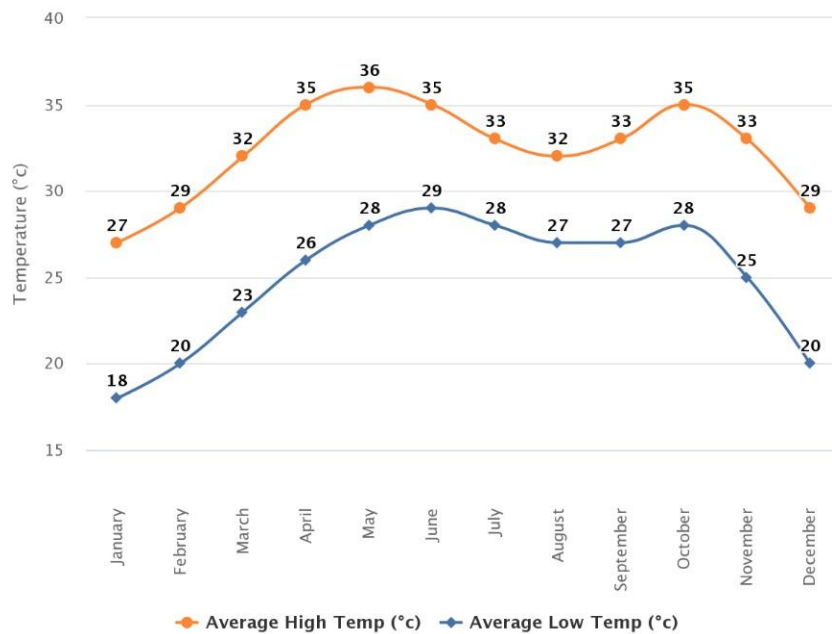
#### **2.2 [Title of the Section]**

A sample graph is shown in the Figure 2.1. Always use the “Insert Caption” option to insert the figure label and numbering automatically. This will also automatically update them in the List of Figures. Captions of figures should be given on the bottom of the figures. To refer to a figure in the text go to References in the Ribbon, then click on Cross-reference, then select Figure in Reference type, then select Only label and number in Insert reference to.

Shown in Figure 2.2



**Figure 2.1** *Trend of Monthly Average High and Low Temperatures in Karachi (Shepherd, 1956)*



**Figure 2.2 abc**

## 2.3 [Title of the Section]

A sample table is shown in the Table 1. Always use the “Insert Caption” option to insert the figure label and numbering automatically. This will also automatically update them in the List of Figures. Captions of tables should be given on the top of the tables. To refer to a table in the text go to References in the Ribbon, then

click on Cross-reference, then select Table in Reference type, then select Only label and number in Insert reference to.

*Table 2.1 Residual Stresses for a Plate*

<b>Orientation</b>	<b><math>\sigma_x</math> (MPa)</b>	<b><math>\sigma_y</math> (MPa)</b>	<b><math>\tau_{xy}</math> (MPa)</b>	<b><math>\tau_{yz}</math> (MPa)</b>	<b><math>\tau_{zx}</math> (MPa)</b>
0°	-0.282	-0.143	0	0	0
90°	0.282	0.143	0	0	0

## 2.4 More Sections

Include sections as appropriate to your literature review.

## Chapter 3

### *3. [Name of the Chapter]*

#### **3.1 Introduction**

Include more chapters as appropriate to your thesis. All chapters should start from a new page. The middle chapters should discuss your work on the thesis. Some famous headings for these chapters are Design and Calculations, Modeling and Simulations, Fabrication Work, Data Acquisition and Analysis, Comparison of Methods, Results, Discussion/Interpretation of Results, etc.

## Chapter 4

### *4. [Name of the Chapter]*

#### **4.1 Introduction**

More chapters.

## Chapter 5

### 5. *[Name of the Chapter]*

#### 5.1 Conclusion

The last chapter should be “Conclusions”. It is ideally the fourth or fifth section of the report. This chapter should include the aims and objectives of the thesis. It should also summarize the important points in the previous chapters, and the findings and achievements of your thesis. If possible, write some recommended future work on the thesis based in your conclusions. Therefore, the last section of this chapter should ideally be “Recommendations”. For example, you may provide recommendations by discussing constraints of your thesis and ideas to eliminate them. You may also highlight other possible investigations to improve the efficiency of your thesis. Use present perfect tense to write the conclusions. The recommended two sections for the Conclusions chapter are “Summary” and “Recommendations for Future Work”.

Do not use cross referencing, external references, or footnotes in the Conclusions chapter. Make it a stand-alone chapter.

#### 5.2 Recommendations for Future Work

Write  
details here.



## Appendix A

### [Title of Appendix]

Include appendices, if applicable. Appendices should include the information that is not the primary part of the main body of the thesis. This means that if this information is removed from the main body, it would not negatively affect the flow of ideas in the main body of the report. For example, it may include long computer programming codes while keeping a flow chart of the code in the main body of the report. It may also include lengthy numerical data while keeping their graphs in the main body of the report.

If the thesis has only one appendix, then the label of this chapter should be “Appendix” (not “Appendix A”). To cite an appendix in the text, write full title of the appendix that is “Appendix A”, “Appendix B”, etc. Each appendix should start from a new page and should also include a short description of what is included in that appendix.

## ***6. References***

Shepherd, D. G. (1956). Performance of one-row tube coils with thin-plate fins, low velocity forced convection. *Heating, Piping Air Cond*, 28, 137-144.

## Glossary [Optional]

[Page at  
which it  
first  
appeared]

<b><u>Term</u></b>	<b><u>Definition</u></b>	
<b>Azimuth</b>	<i>angle between North, measured clockwise around the observer's horizon and sun</i>	Pg. 1
<b>Zenith</b>	<i>an imaginary point directly above the observer/system, complement of altitude angle</i>	Pg. 5

